Amino acid sequence of the B4ECv3 protein

MELRVLLCWASLAAALEETLLNTKLETADLKWVTFPQVDGQWEELSG
LDEEQHSVRTYEVCEVQRAPGQAHWLRTGWVPRRGAVHVYATLRFTM
LECLSLPRAGRSCKETFTVFYYESDADTATALTPAWMENPYIKVDTV
AAEHLTRKRPGAEATGKVNVKTLRLGPLSKAGFYLAFQDQGACMALL
SLHLFYKKCAQLTVNLTRFPETVPRELVVPVAGSCVVDAVPAPGPSP
SLYCREDGQWAEQPVTGCSCAPGFEAAEGNTKCRACAQGTFKPLSGE
GSCQPCPANSHSNTIGSAVCQCRVGYFRARTDPRGAPCTTPPSAPRS
VVSRLNGSSLHLEWSAPLESGGREDLTYALRCRECRPGGSCAPCGGD
LTFDPGPRDLVEPWVVVRGLRPDFTYTFEVTALNGVSSLATGPVPFE
PVNVTTDREVPPAVSDIRVTRSSPSSLSLAWAVPRAPSGAWLDYEVK
YHEKGAEGPSSVRFLKTSENRAELRGLKRGASYLVQVRARSEAGYGP
FGQEHHSQTQLDESEGWREQGSKRAILQIEGKPIPNPLLGLDSTRTG
HHHHHH

Fig. 1

Amino acid sequence of the B4ECv3NT protein

MELRVLLCWASLAAALEETLLNTKLETADLKWVTFPQVDGQWEELSGL
DEEQHSVRTYEVCEVQRAPGQAHWLRTGWVPRRGAVHVYATLRFTMLE
CLSLPRAGRSCKETFTVFYYESDADTATALTPAWMENPYIKVDTVAAE
HLTRKRPGAEATGKVNVKTLRLGPLSKAGFYLAFQDQGACMALLSLHL
FYKKCAQLTVNLTRFPETVPRELVVPVAGSCVVDAVPAPGPSPSLYCR
EDGQWAEQPVTGCSCAPGFEAAEGNTKCRACAQGTFKPLSGEGSCQPC
PANSHSNTIGSAVCQCRVGYFRARTDPRGAPCTTPPSAPRSVVSRLNG
SSLHLEWSAPLESGGREDLTYALRCRECRPGGSCAPCGGDLTFDPGPR
DLVEPWVVVRGLRPDFTYTFEVTALNGVSSLATGPVPFEPVNVTTDRE
VPPAVSDIRVTRSSPSSLSLAWAVPRAPSGAWLDYEVKYHEKGAEGPS
SVRFLKTSENRAELRGLKRGASYLVQVRARSEAGYGPFGQEHHSQTQL
DESEGWREQGSKRAILQISSTVAAARV

Fig. 2

Amino acid sequence of the B2EC protein

MAVRRDSVWKYCWGVLMVLCRTAISKSIVLEPIYWNSSNSKFLPGQGL
VLYPQIGDKLDIICPKVDSKTVGQYEYYKVYMVDKDQADRCTIKKENT
PLLNCAKPDQDIKFTIKFQEFSPNLWGLEFQKNKDYYIISTSNGSLEG
LDNQEGGVCQTRAMKILMKVGQDASSAGSTRNKDPTRRPELEAGTNGR
SSTTSPFVKPNPGSSTDGNSAGHSGNNILGSEVGSHHHHHH

Fig. 3

Amino acid sequence of the B4ECv3-FC protein

MELRVLLCWASLAAALEETLLNTKLETADLKWVTFPQVDGQWEEL
SGLDEEQHSVRTYEVCEVQRAPGQAHWLRTGWVPRRGAVHVYATL
RFTMLECLSLPRAGRSCKETFTVFYYESDADTATALTPAWMENPY
IKVDTVAAEHLTRKRPGAEATGKVNVKTLRLGPLSKAGFYLAFQD
QGACMALLSLHLFYKKCAQLTVNLTRFPETVPRELVVPVAGSCVV
DAVPAPGPSPSLYCREDGQWAEQPVTGCSCAPGFEAAEGNTKCRA
CAQGTFKPLSGEGSCQPCPANSHSNTIGSAVCQCRVGYFRARTDP
RGAPCTTPPSAPRSVVSRLNGSSLHLEWSAPLESGGREDLTYALR
CRECRPGGSCAPCGGDLTFDPGPRDLVEPWVVVRGLRPDFTYTFE
VTALNGVSSLATGPVPFEPVNVTTDREVPPAVSDIRVTRSSPSSL
SLAWAVPRAPSGAWLDYEVKYHEKGAEGPSSVRFLKTSENRAELR
GLKRGASYLVQVRARSEAGYGPFGQEHHSQTQLDESEGWREQDPE
PKSCDKTHTCPPCPAPELLGGPSVFLFPPKPKDTLMISRTPEVTC
VVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVL
TVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTL
PPSRDELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPP
VLDSDGSFFLYSKLTVDKSRWQQGNVFSCSVMHEALHNHYTQKSL
SLSPGK

Fig. 4

Amino acid sequence of the B2EC-FC protein

MAVRRDSVWKYCWGVLMVLCRTAISKSIVLEPIYWNSSNSKFLPGQ
GLVLYPQIGDKLDIICPKVDSKTVGQYEYYKVYMVDKDQADRCTIK
KENTPLLNCAKPDQDIKFTIKFQEFSPNLWGLEFQKNKDYYIISTS
NGSLEGLDNQEGGVCQTRAMKILMKVGQDASSAGSTRNKDPTRRPE
LEAGTNGRSSTTSPFVKPNPGSSTDGNSAGHSGNNILGSEVDPEPK
SCDKTHTCPPCPAPELLGGPSVFLFPPKPKDTLMISRTPEVTCVVV
DVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTVLH
QDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRD
ELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDSDG
SFFLYSKLTVDKSRWQQGNVFSCSVMHEALHNHYTQKSLSLSPGK

Fig. 5

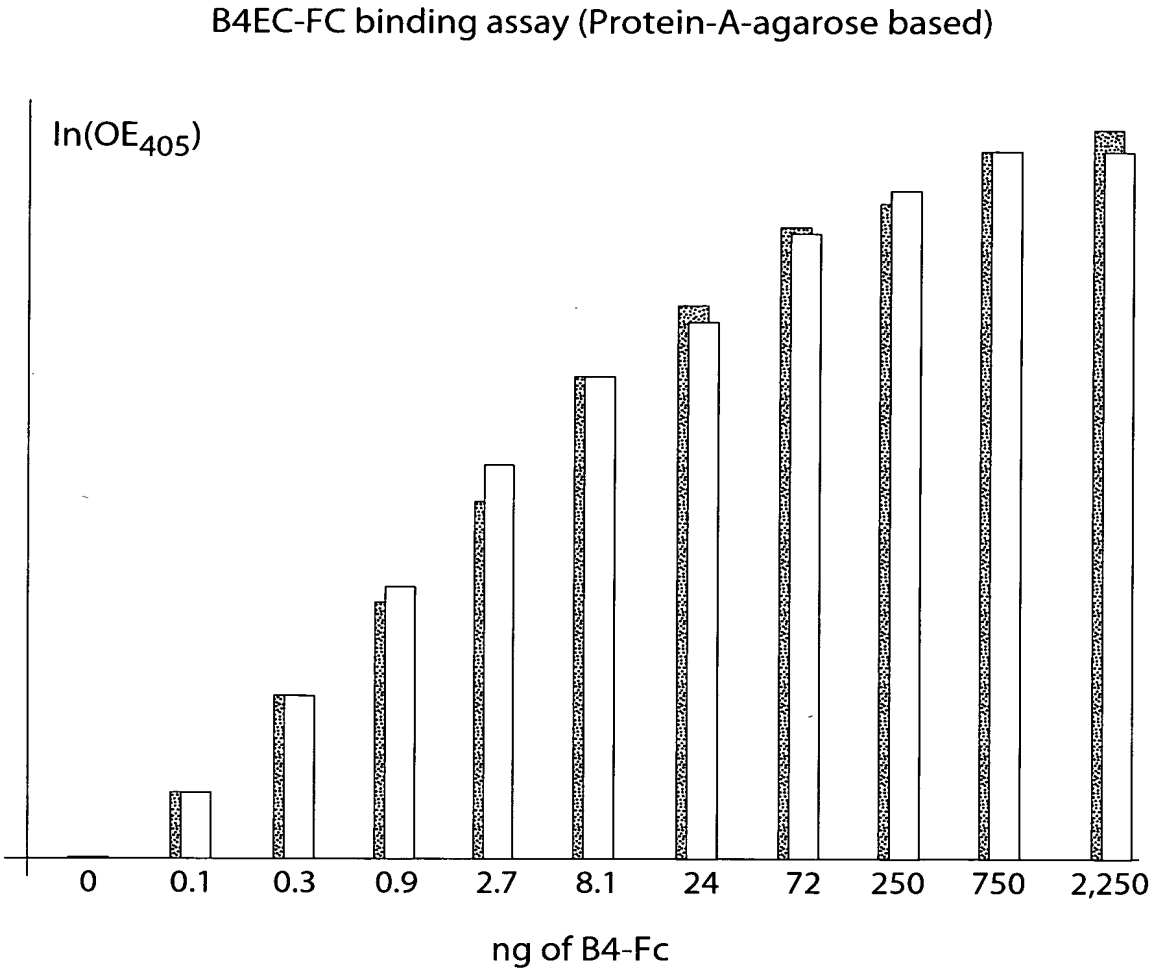

B4EC-FC binding assay (Protein-A-agarose based)
ln(OE405)
0
0.1
0.3
0.9
2.7
8.1
24
72
250
750
2,250
ng of B4-Fc

Fig. 6

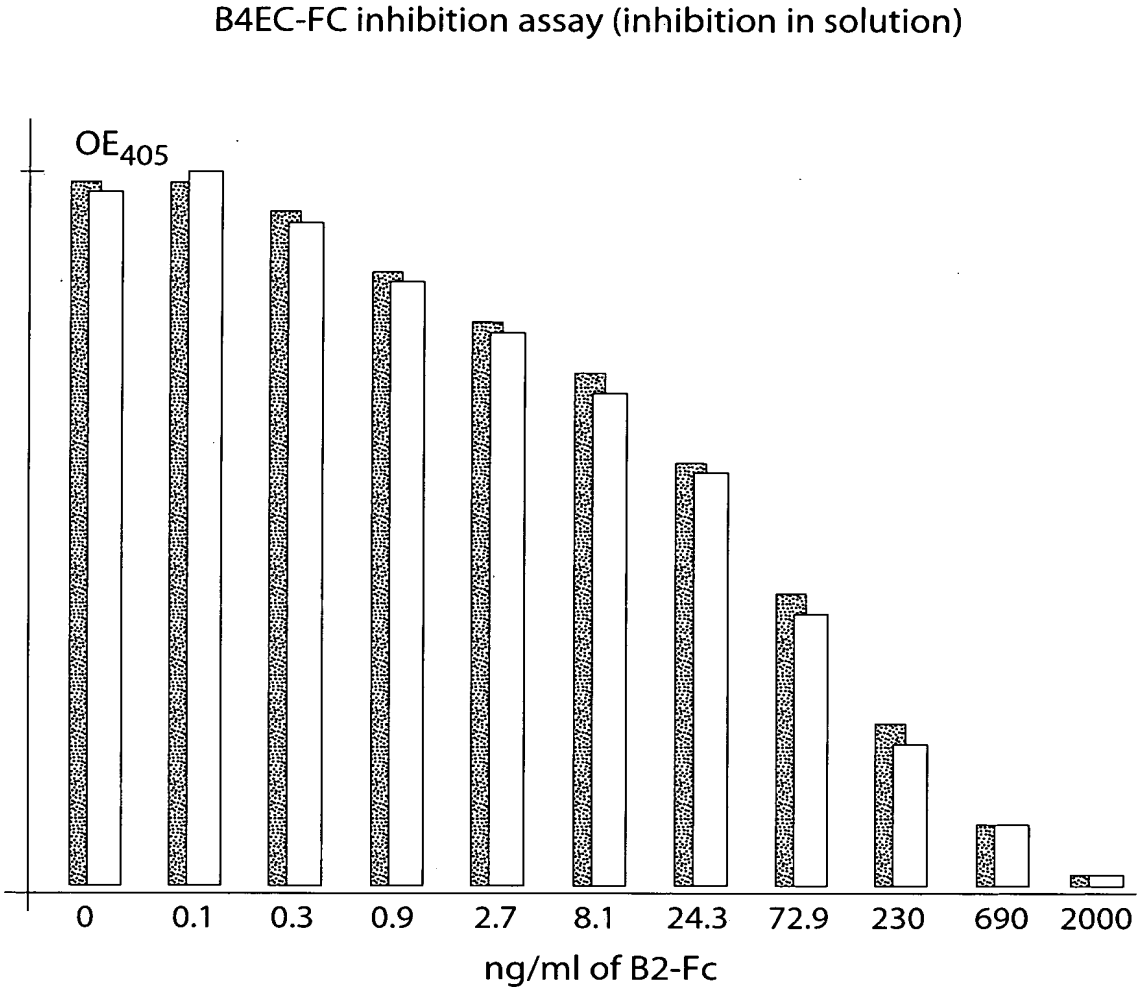

B4EC-FC inhibition assay (inhibition in solution)
OE405
0
0.1
0.3
0.9
2.7
8.1
24.3
72.9
230
690
2000
ng/ml of B2-Fc

Fig. 7

B2EC-FC binding assay (Protein-A-agarose based assay)

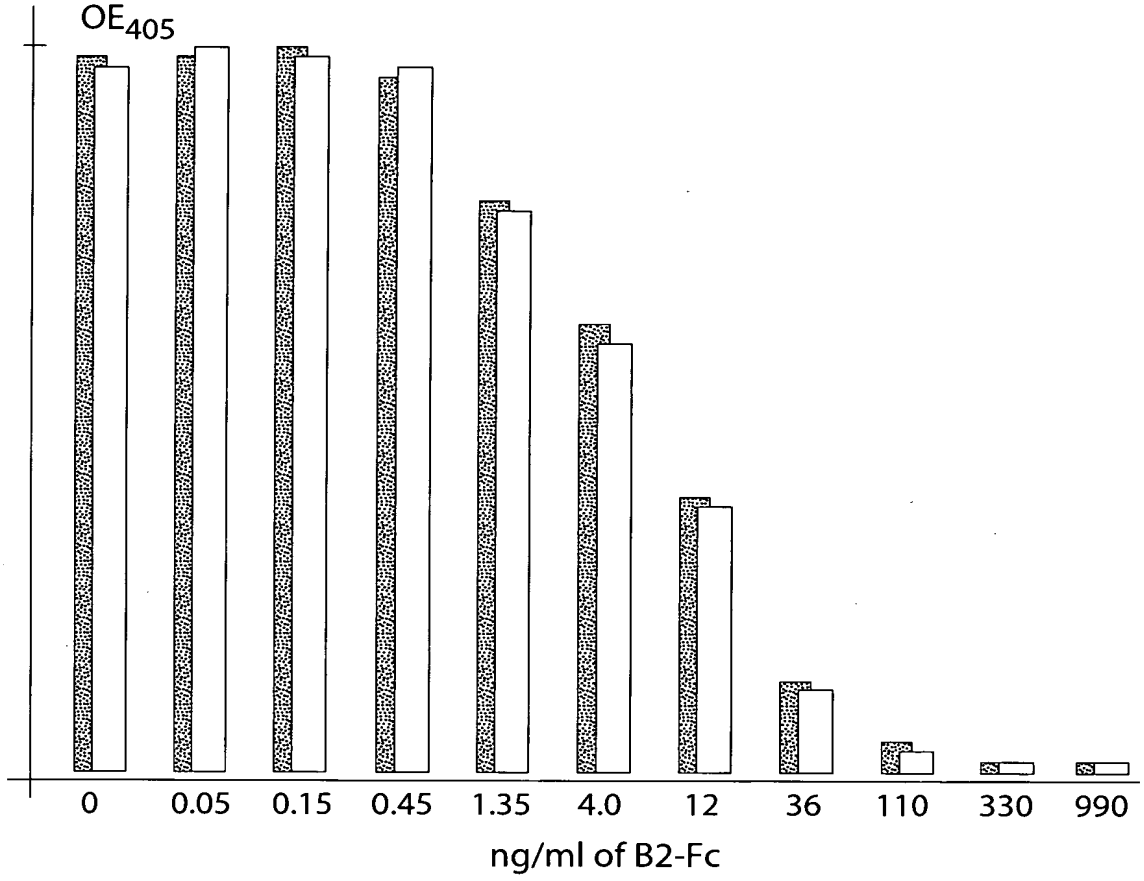


Fig. 8

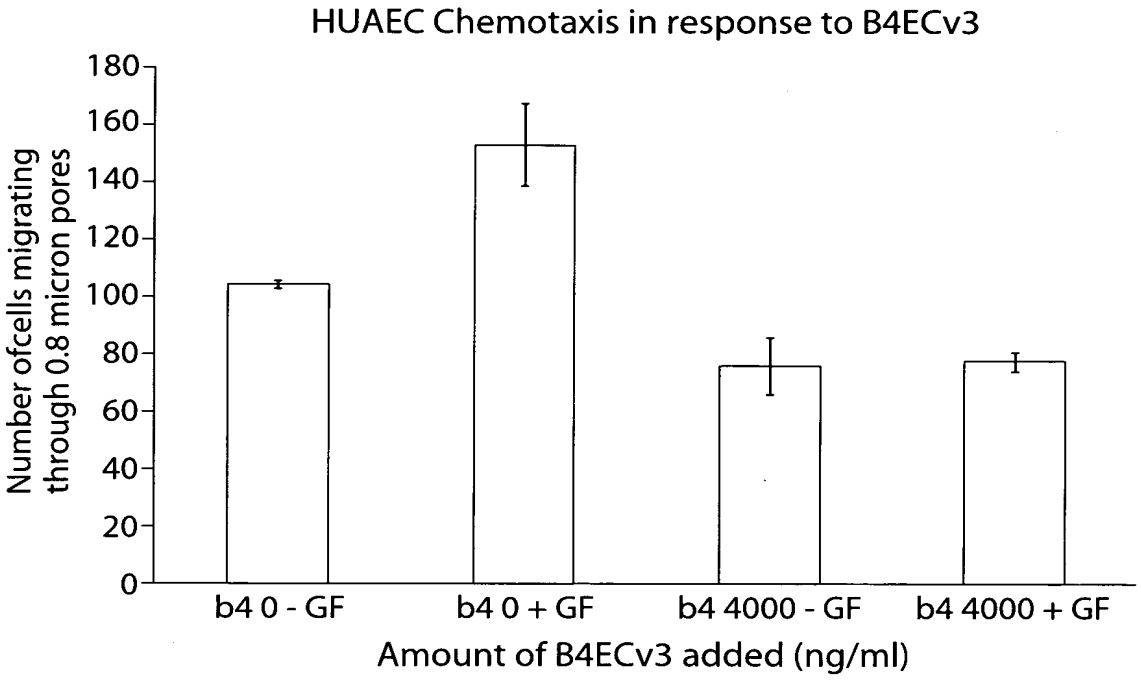

HUAEC Chemotaxis in response to B4ECv3
Number ofcells migrating through 0.8 micron pores
180
160
140
120
100
80
60
40
20
0
b4 0 - GF
b4 0 + GF
b4 4000 - GF
b4 4000 + GF
Amount of B4ECv3 added (ng/ml)

Fig. 9

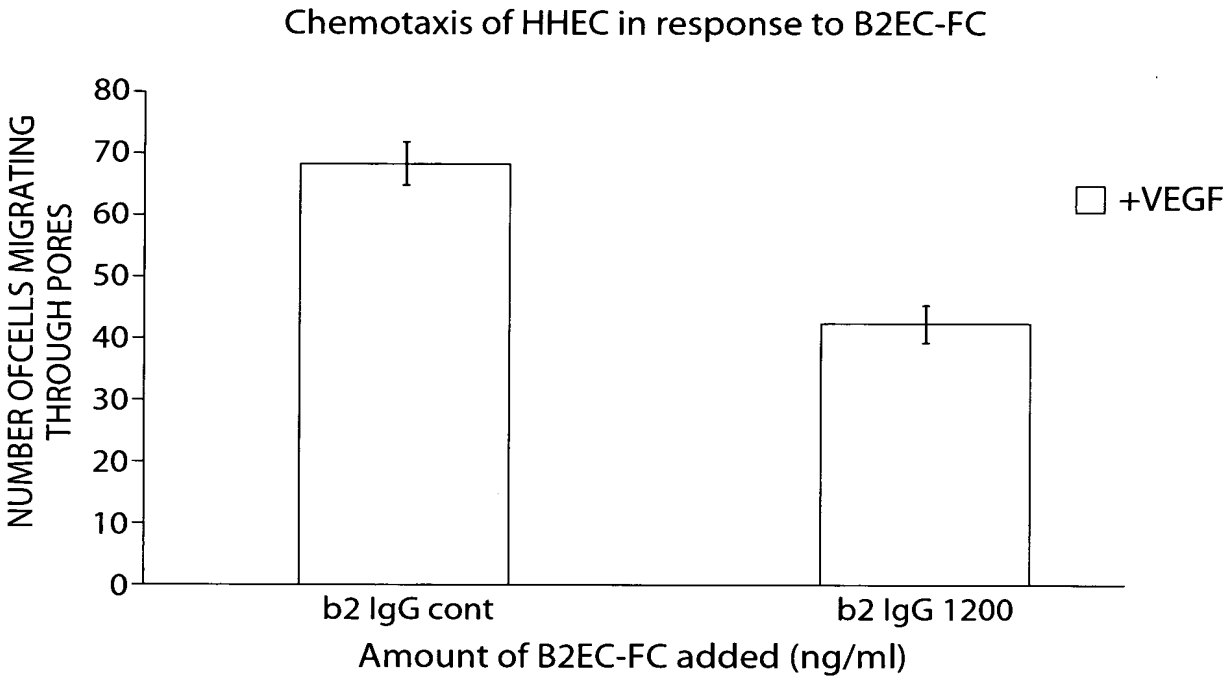

Chemotaxis of HHEC in response to B2EC-FC
NUMBER OFCELLS MIGRATING THROUGH PORES
80
70
60
50
40
30
20
10
0
+VEGF
b2 IgG cont
b2 IgG 1200
Amount of B2EC-FC added (ng/ml)

Fig. 10

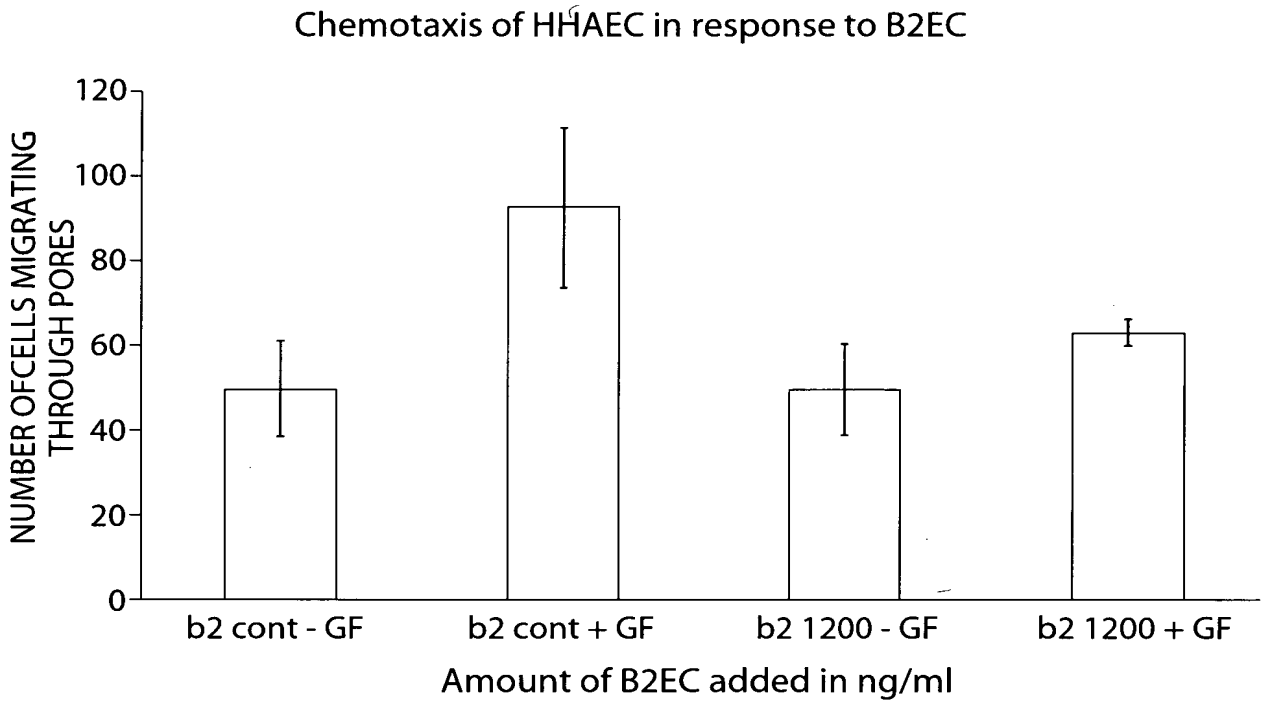

Chemotaxis of HHAEC in response to B2EC
NUMBER OFCELLS MIGRATING THROUGH PORES
120
100
80
60
40
20
0
b2 cont - GF
b2 cont + GF
b2 1200 - GF
b2 1200 + GF
Amount of B2EC added in ng/ml

Fig. 11

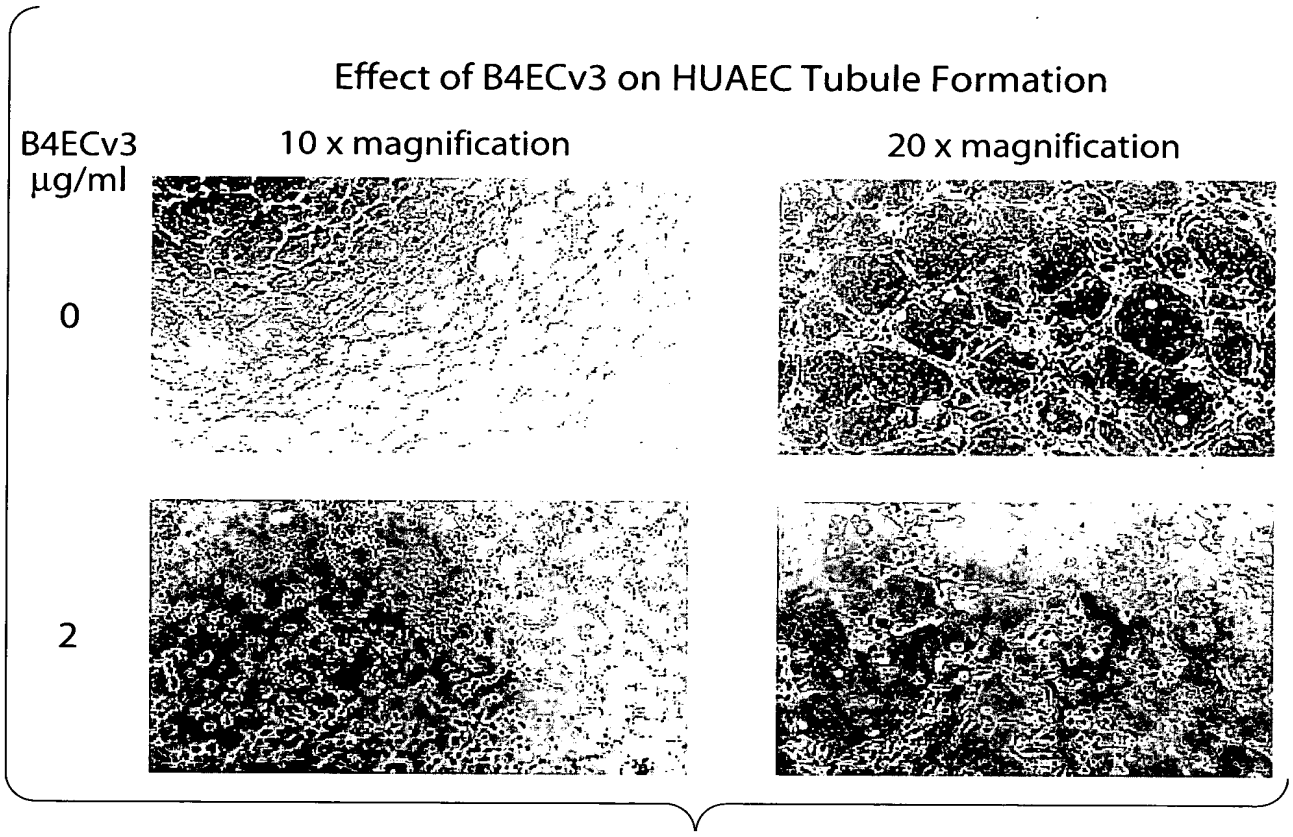

Effect of B4ECv3 on HUAEC Tubule Formation
B4ECv3 µg/ml
10 x magnification
20 x magnification
0
2

Fig. 12

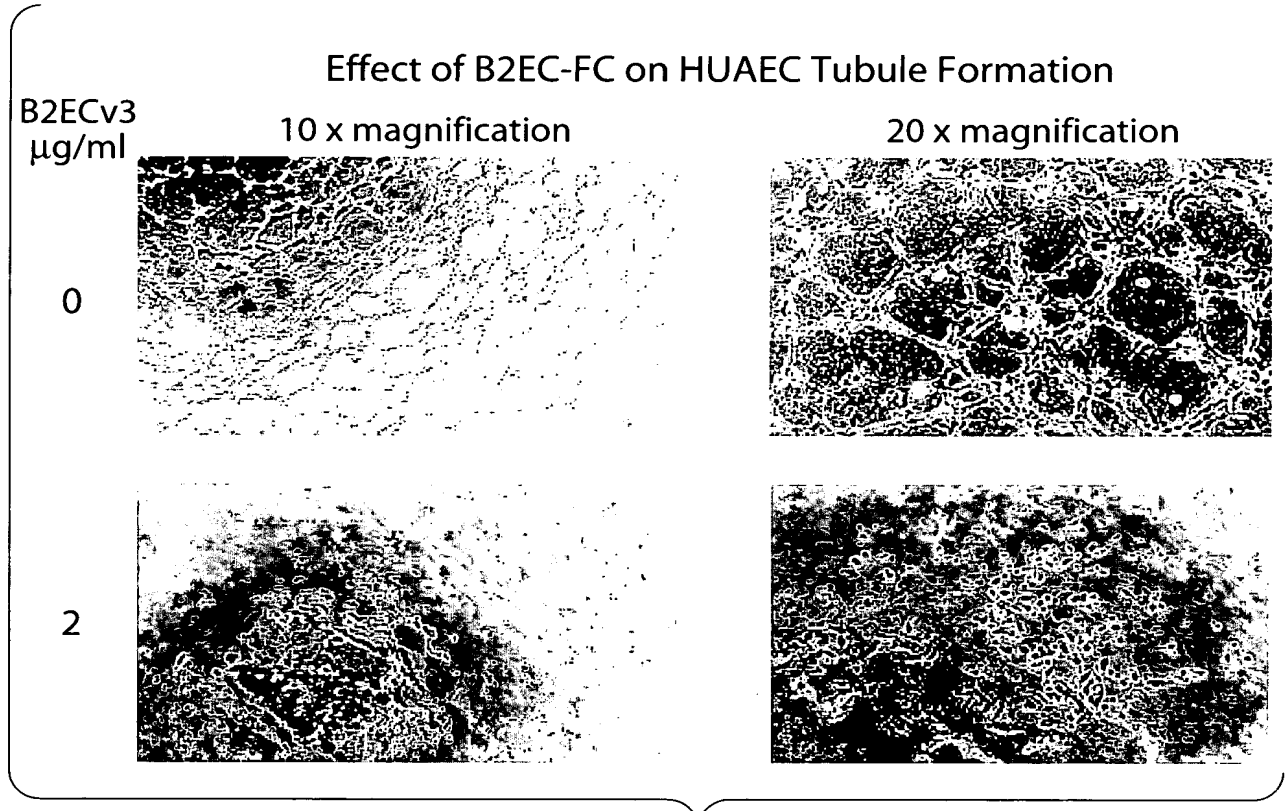
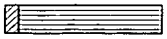
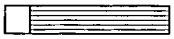
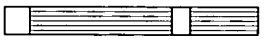
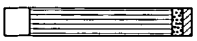
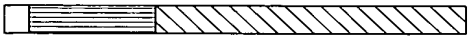

Effect of B2EC-FC on HUAEC Tubule Formation
B2ECv3 µg/ml
10 x magnification
20 x magnification
0
2

Fig. 13

hEphrin B2 constructs

VECTOR	DETAILS	
pET15b	*E.coli*	
pGEX	*E.coli*	
pEF6	Mammalian, CMV promoter transient	
pAPtag-2	Mammalian, Blasticidin S, EF1a promoter, transient and stable	
pRK5	Mammalian, CMV promoter transient	
pcDNA3	Mammalian, G418, CMV prompter, transient and stable	
pEF6	Mammalian, Blasticidin S, EF1a promoter, transient and stable	
pEF6	Mammalian, Blasticidin S, EF1a promoter, transient and stable	
pEF6	Mammalian, Blasticidin S, EF1a promoter, transient and stable	
pEF6	Mammalian, Blasticidin S, EF1a promoter, transient and stable	
pIG-Fc	Mammalian, CMV promoter transient	

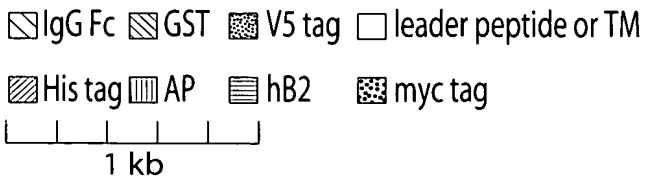


Fig. 14

hEph B4 constructs

VECTOR	DETAILS
pET15b	*E.coli*
pET15b	*E.coli*
pGEX	*E.coli*
pGEX	*E.coli*
pEF6	Mammalian, Blasticidin S, EF1a promoter
pEF6	Mammalian, Blasticidin S, EF1a promoter
pAPtag-2	Mammalian, CMV promoter
pAPtag-2	Mammalian, CMV promoter
pAPtag-2	Mammalian, CMV promoter
pRK5	Mammalian, CMV promoter
pcDNA3	Mammalian, G418 CMV promoter
pEF6	Mammalian, Blasticidin S, EF1a promoter
pEF6	Mammalian, Blasticidin S, EF1a promoter
pEF6	Mammalian, Blasticidin S, EF1a promoter
pEF6	Mammalian, Blasticidin S, EF1a promoter
pEF6	Mammalian, Blasticidin S, EF1a promoter
pIG-Fc	Mammalian, CMV promoter transient
pIG-Fc	Mammalian, CMV promoter transient

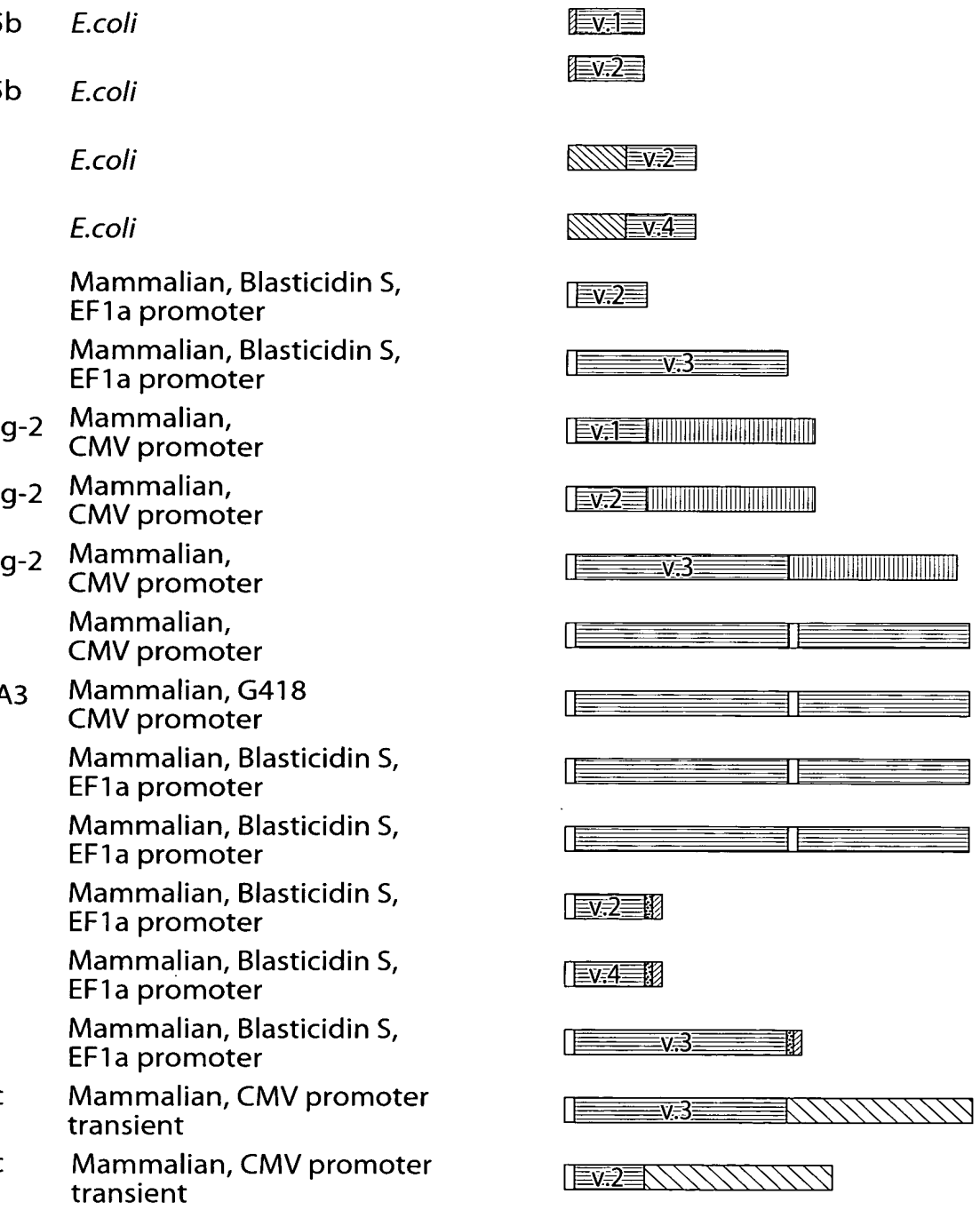


Fig. 15

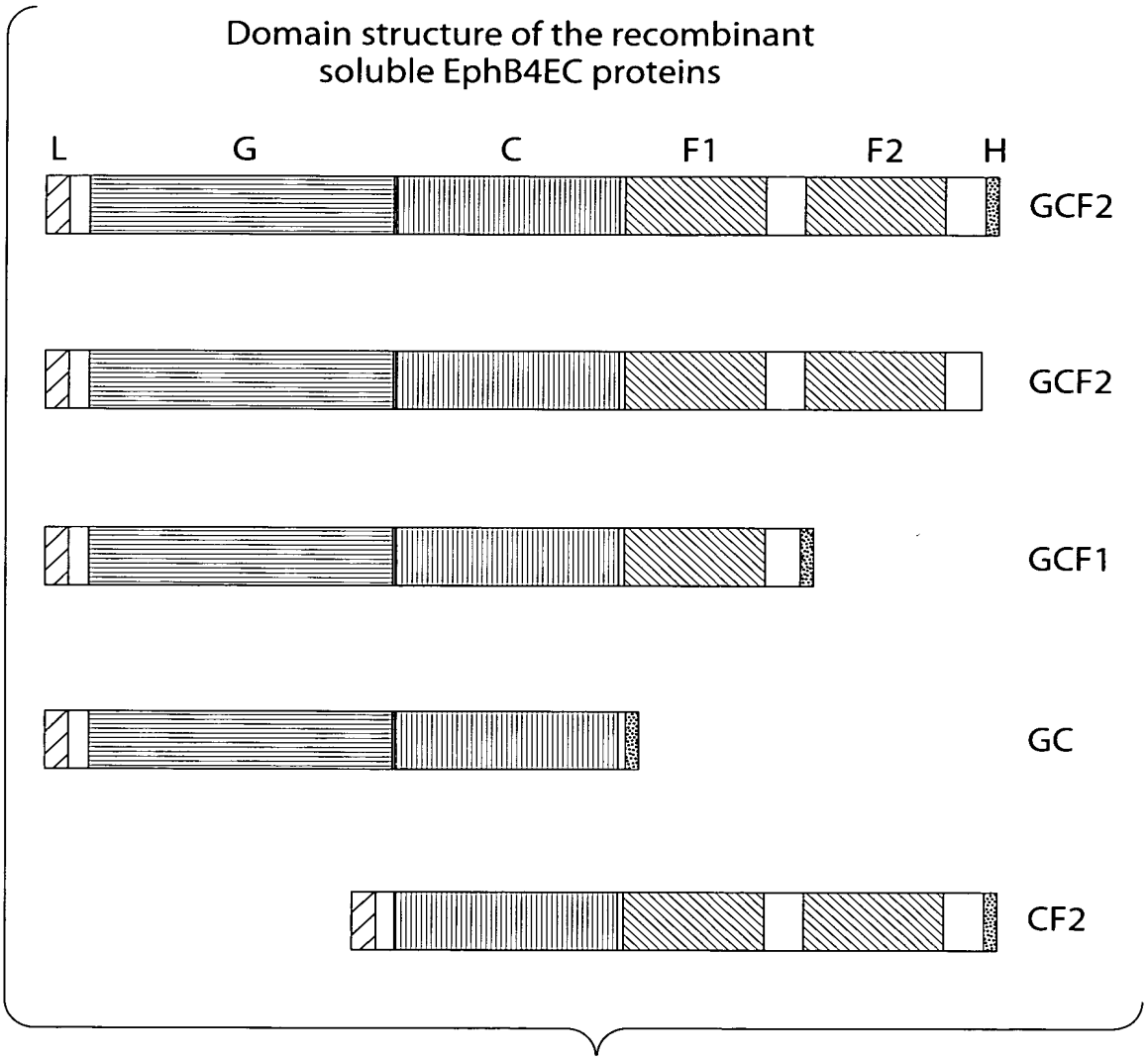

Domain structure of the recombinant
soluble EphB4EC proteins
L
G
C
F1
F2
H
GCF2
GCF2
GCF1
GC
CF2

Fig. 16

Purification and ligand binding properties of the EphB4EC proteins

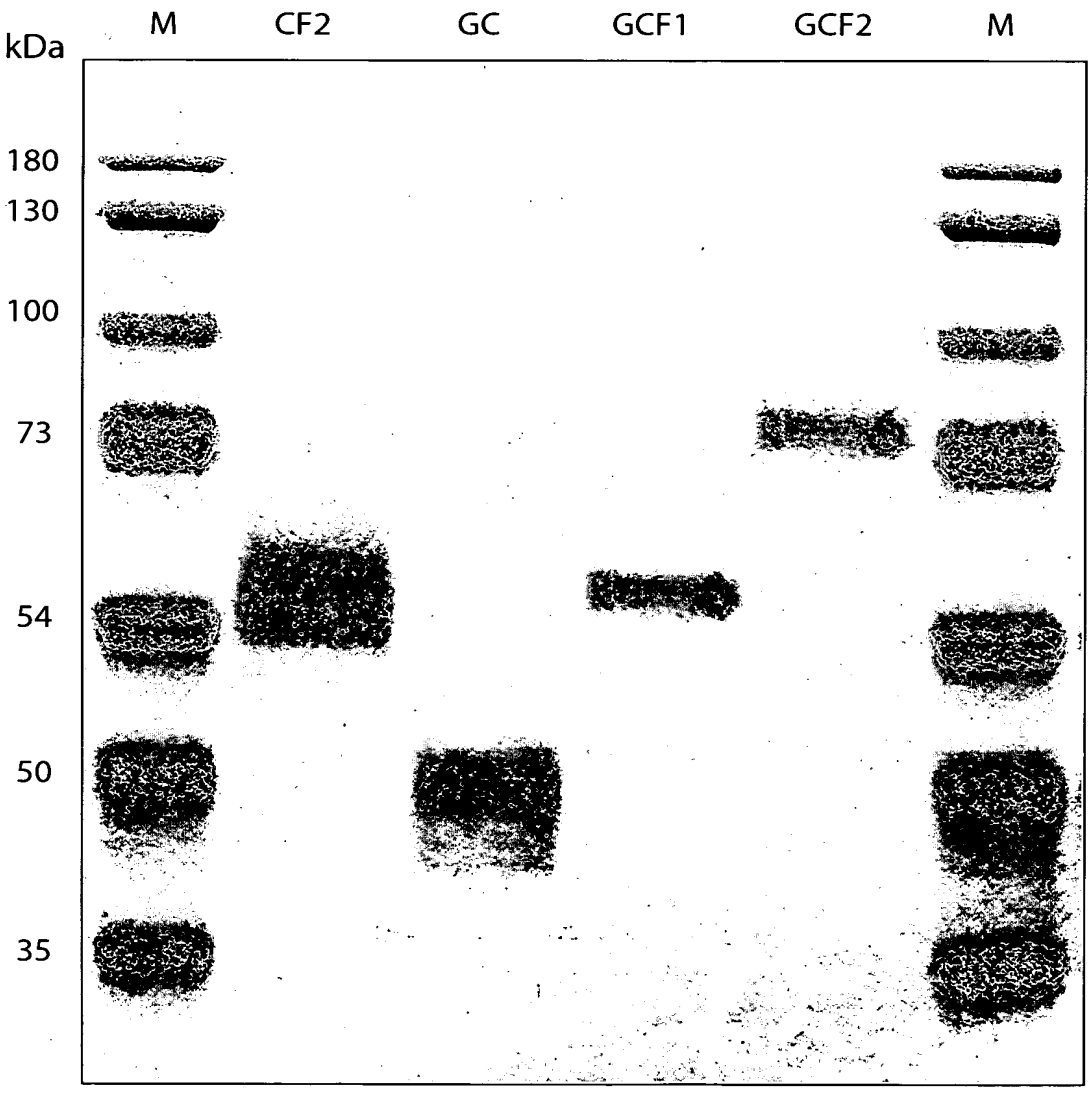


Fig. 17A

Binding of Ephrin B2-AP fusion to EphB4-derived recombinant proteins immobilized on NTA-agarose beads

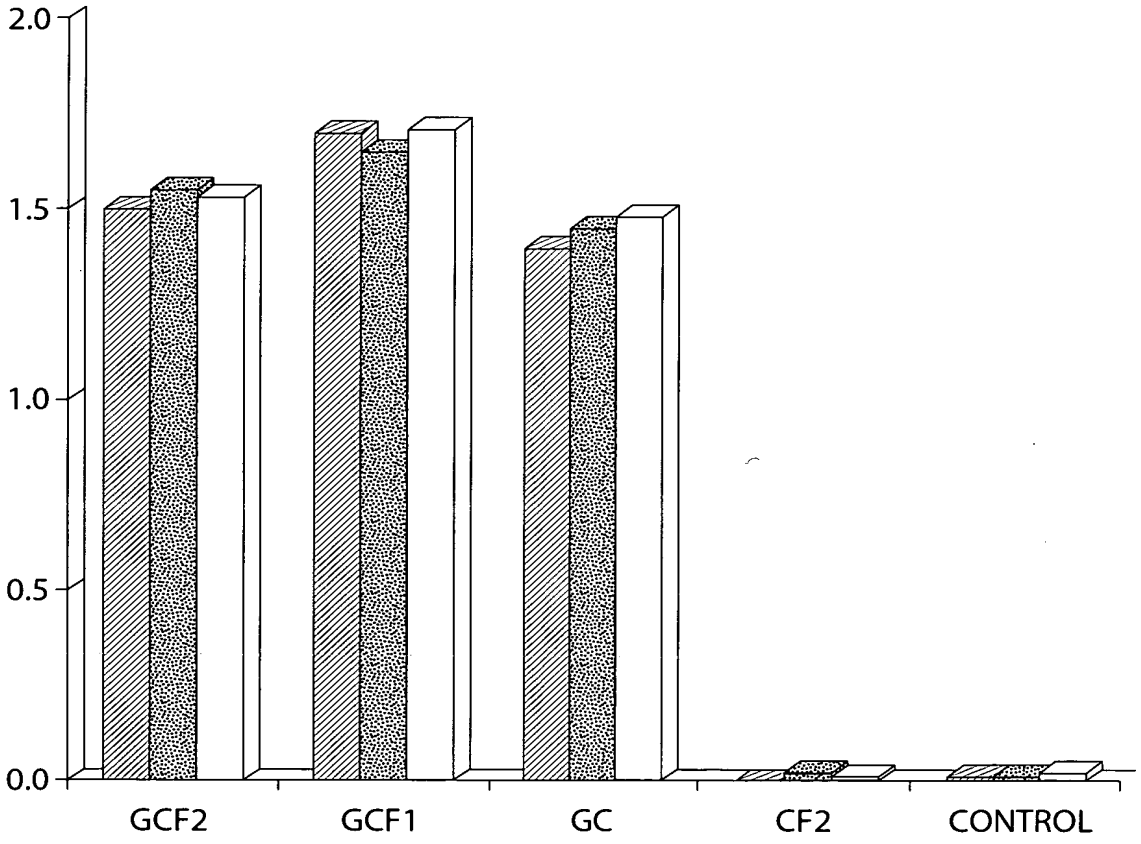


Fig. 17B

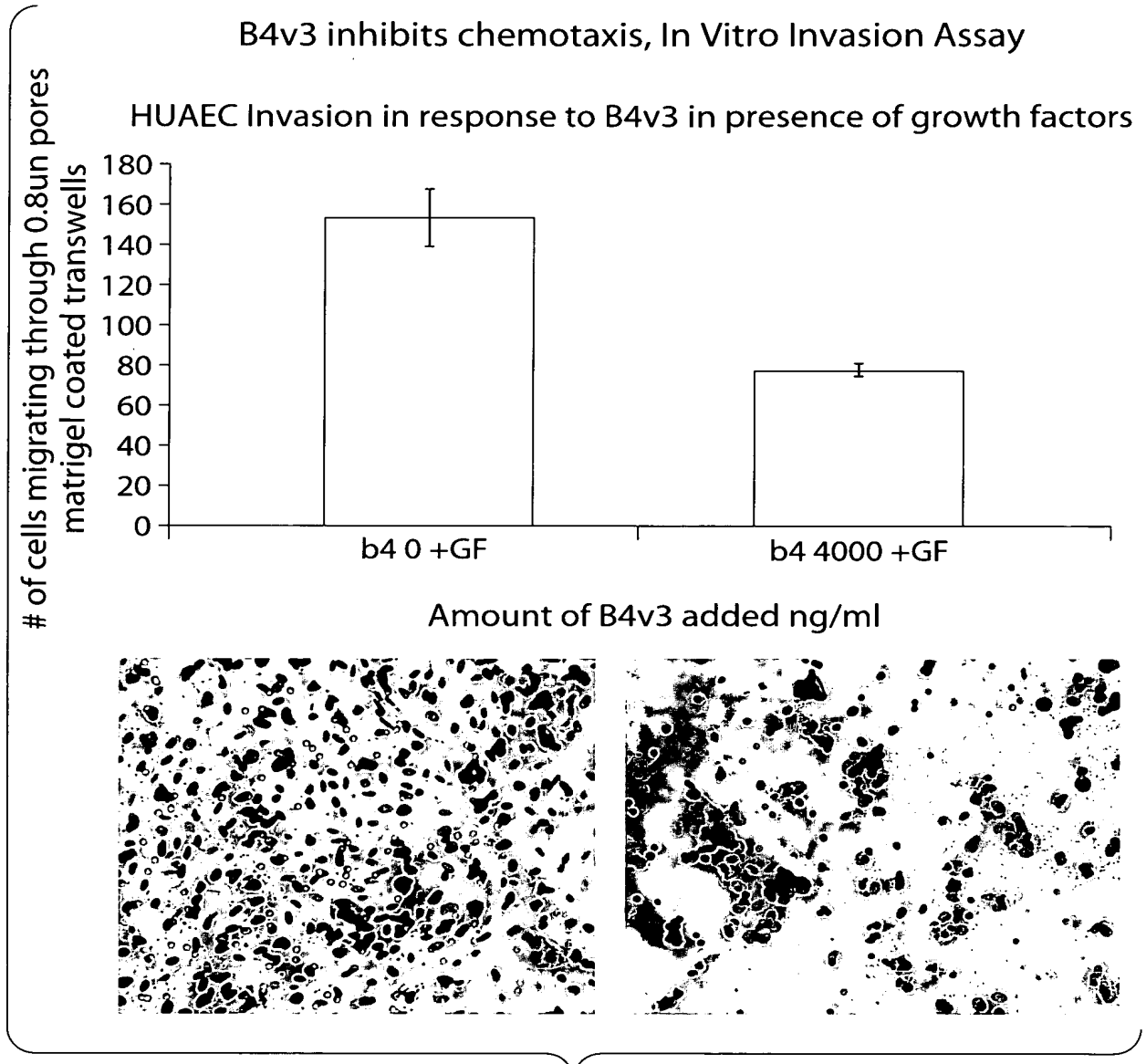

B4v3 inhibits chemotaxis, In Vitro Invasion Assay
HUAEC Invasion in response to B4v3 in presence of growth factors
# of cells migrating through 0.8un pores matrigel coated transwells
180
160
140
120
100
80
60
40
20
0
b4 0 +GF
b4 4000 +GF
Amount of B4v3 added ng/ml

Fig. 18

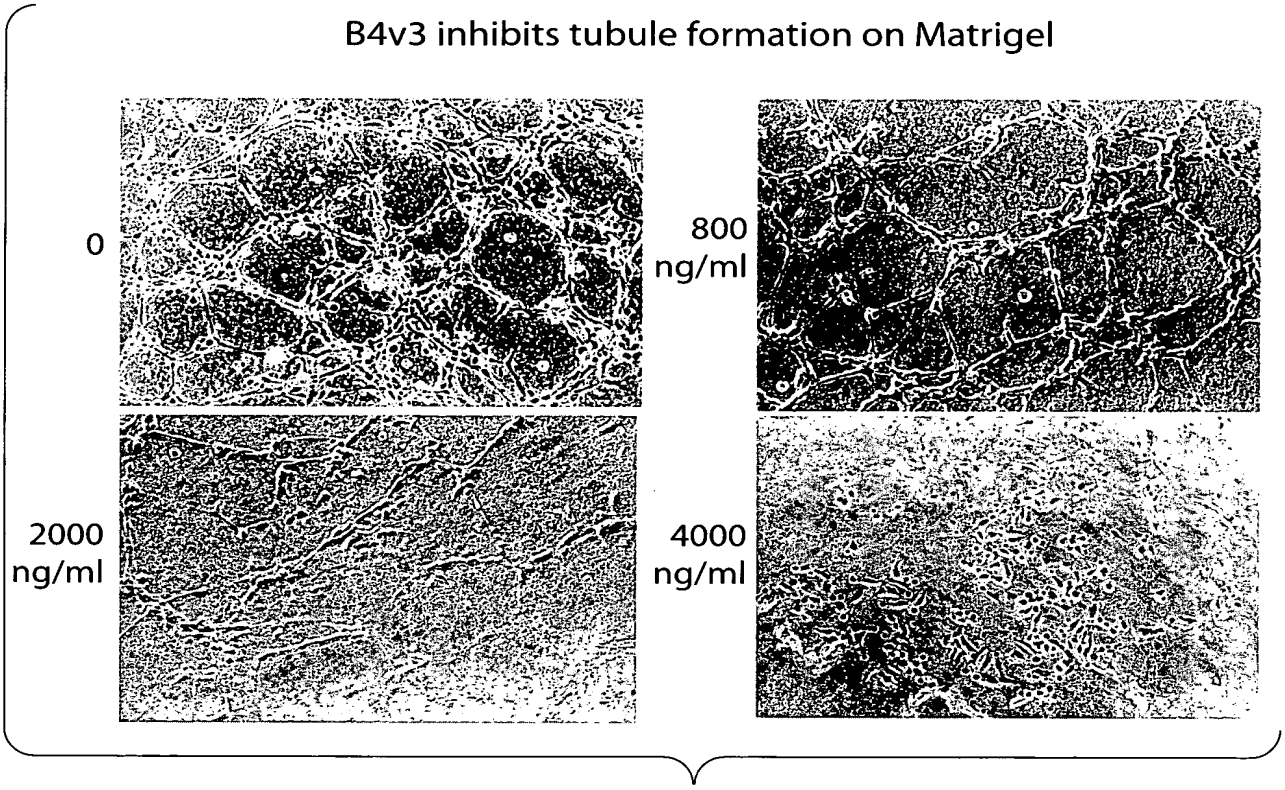

B4v3 inhibits tubule formation on Matrigel
0
800 ng/ml
2000 ng/ml
4000 ng/ml

Fig. 19A

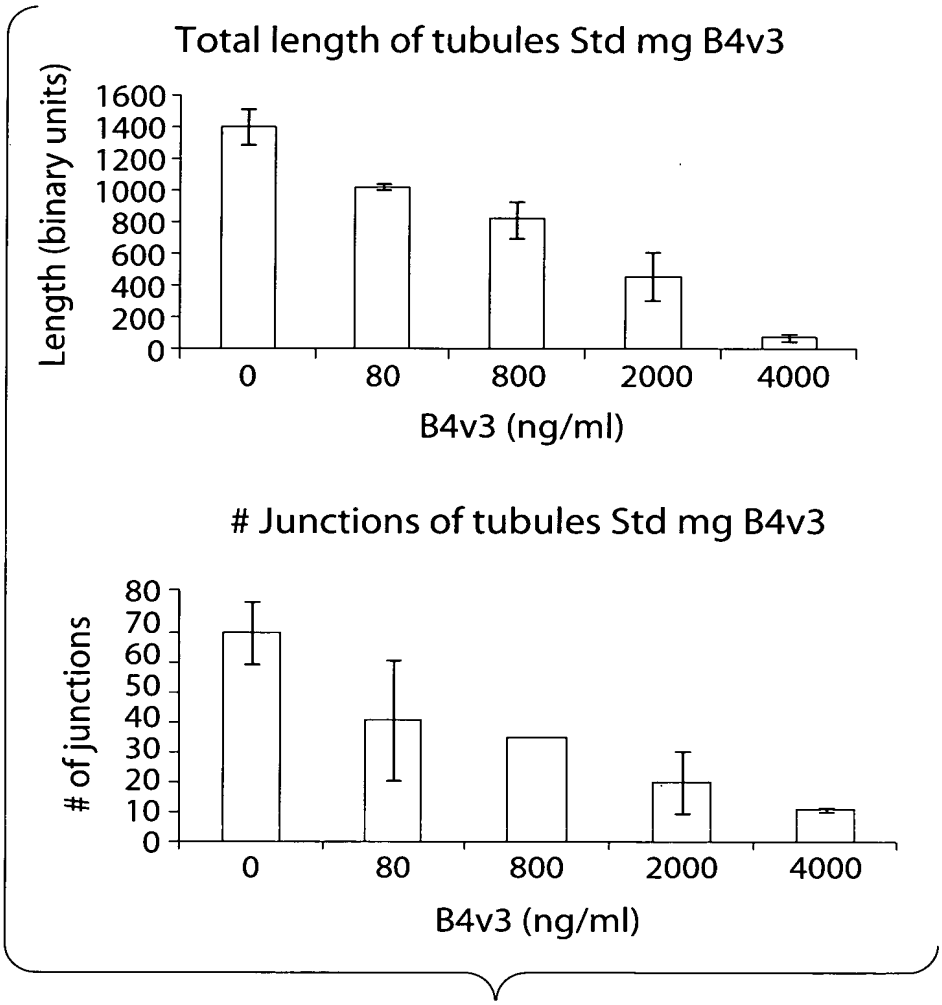

Total length of tubules Std mg B4v3
Length (binary units)
1600
1400
1200
1000
800
600
400
200
0
0
80
800
2000
4000
B4v3 (ng/ml)
Junctions of tubules Std mg B4v3
of junctions
80
70
60
50
40
30
20
10
0
0
80
800
2000
4000
B4v3 (ng/ml)

Fig. 19B

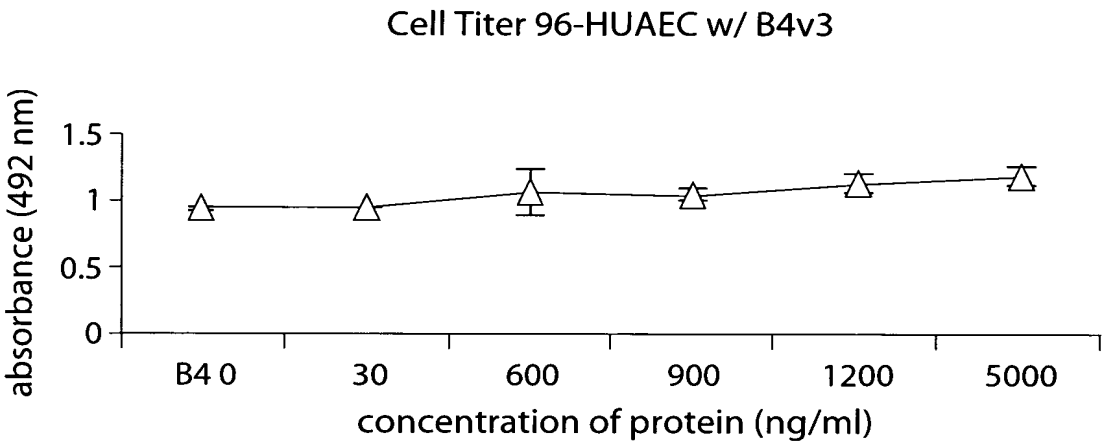

Cell Titer 96-HUAEC w/ B4v3
absorbance (492 nm)
1.5
1
0.5
0
B4 0
30
600
900
1200
5000
concentration of protein (ng/ml)

Fig. 20

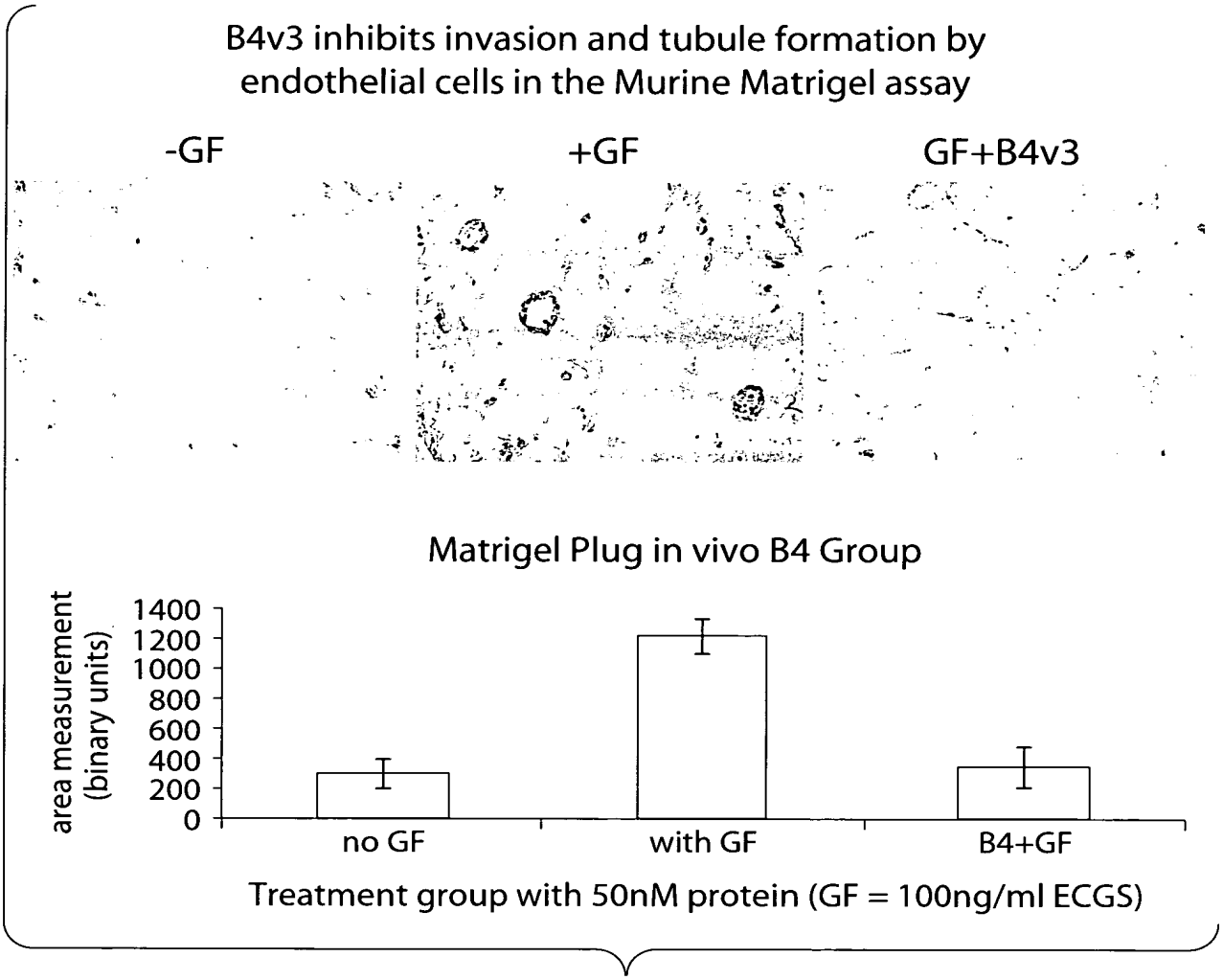

B4v3 inhibits invasion and tubule formation by endothelial cells in the Murine Matrigel assay
-GF
+GF
GF+B4v3
Matrigel Plug in vivo B4 Group
area measurement (binary units)
1400
1200
1000
800
600
400
200
0
no GF
with GF
B4+GF
Treatment group with 50nM protein (GF = 100ng/ml ECGS)

Fig. 21

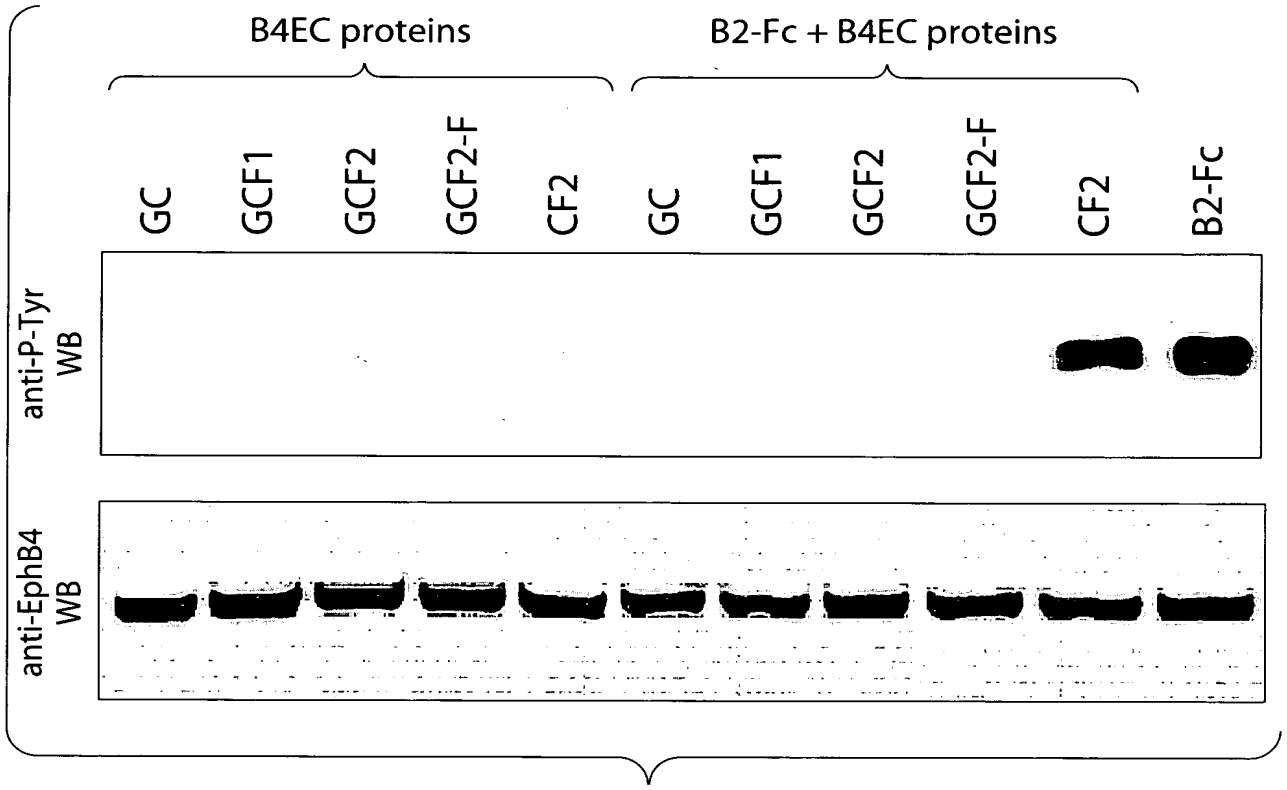

B4EC proteins
B2-Fc + B4EC proteins
GC
GCF1
GCF2
GCF2-F
CF2
GC
GCF1
GCF2
GCF2-F
CF2
B2-Fc
anti-P-Tyr WB
anti-EphB4 WB

Fig. 22

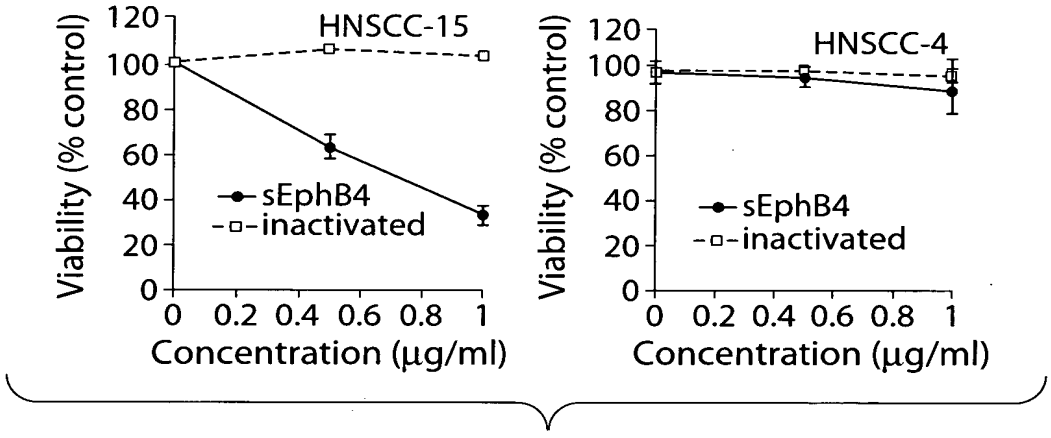


Fig. 23A

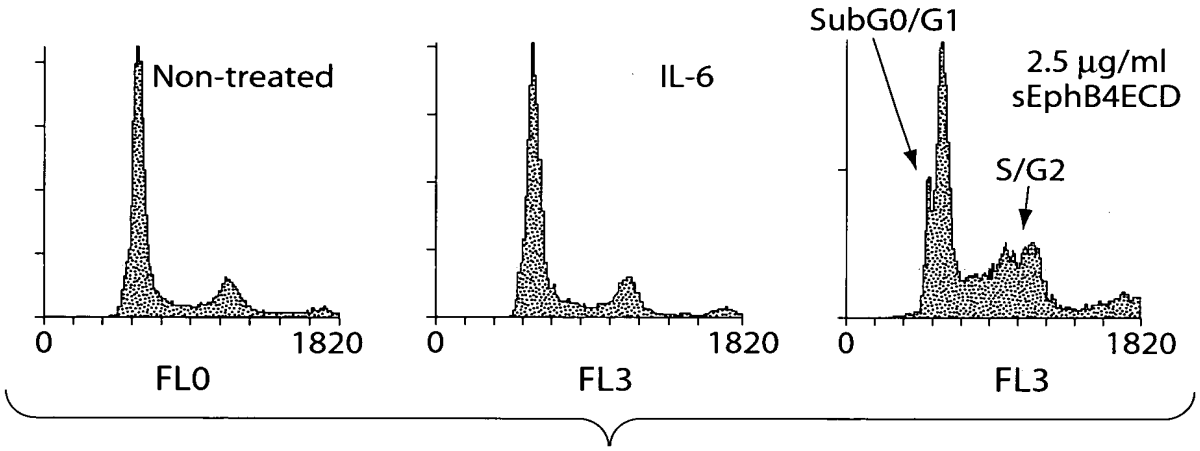
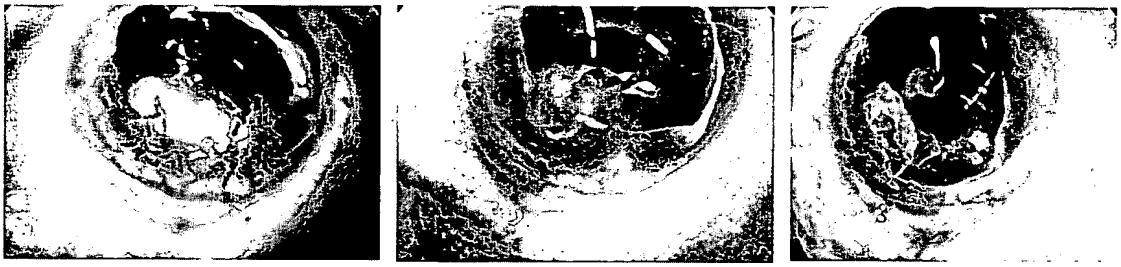


Fig. 23B

B4v3 inhibitis neovascular response in a murine corneal hydron micropocket assay



+GF B4+GF -GF

Fig. 24

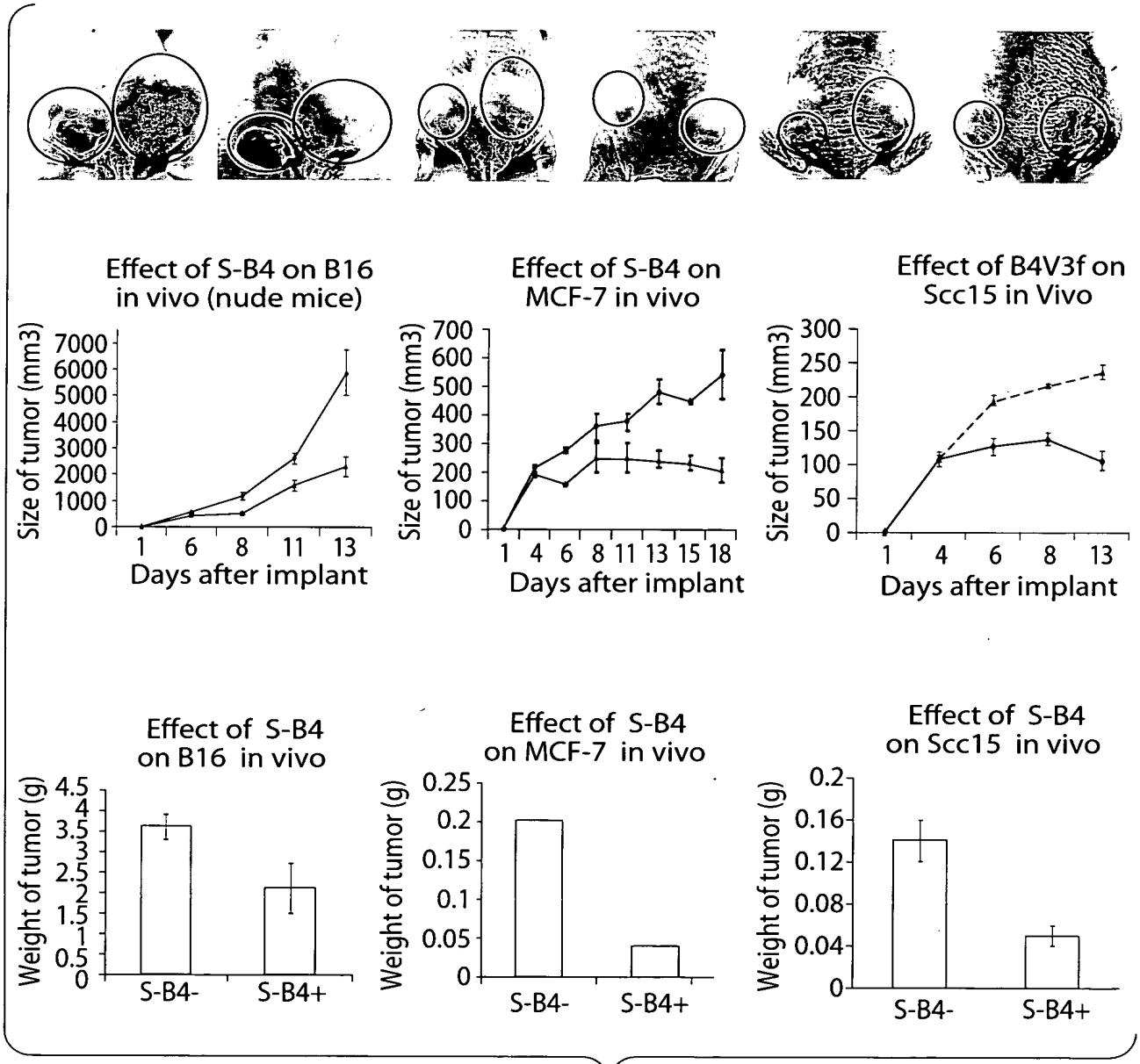

Effect of S-B4 on B16 in vivo (nude mice)
Size of tumor (mm3)
7000
6000
5000
4000
3000
2000
1000
0
1 6 8 11 13
Days after implant
Effect of S-B4 on MCF-7 in vivo
Size of tumor (mm3)
700
600
500
400
300
200
100
0
1 4 6 8 11 13 15 18
Days after implant
Effect of B4V3f on Scc15 in Vivo
Size of tumor (mm3)
300
250
200
150
100
50
0
1 4 6 8 13
Days after implant
Effect of S-B4 on B16 in vivo
Weight of tumor (g)
4.5
4
3.5
2.5
1.5
1
0.5
0
S-B4- S-B4+
Effect of S-B4 on MCF-7 in vivo
Weight of tumor (g)
0.25
0.2
0.15
0.1
0.05
0
S-B4- S-B4+
Effect of S-B4 on Scc15 in vivo
Weight of tumor (g)
0.2
0.16
0.12
0.08
0.04
0
S-B4- S-B4+

Fig. 25

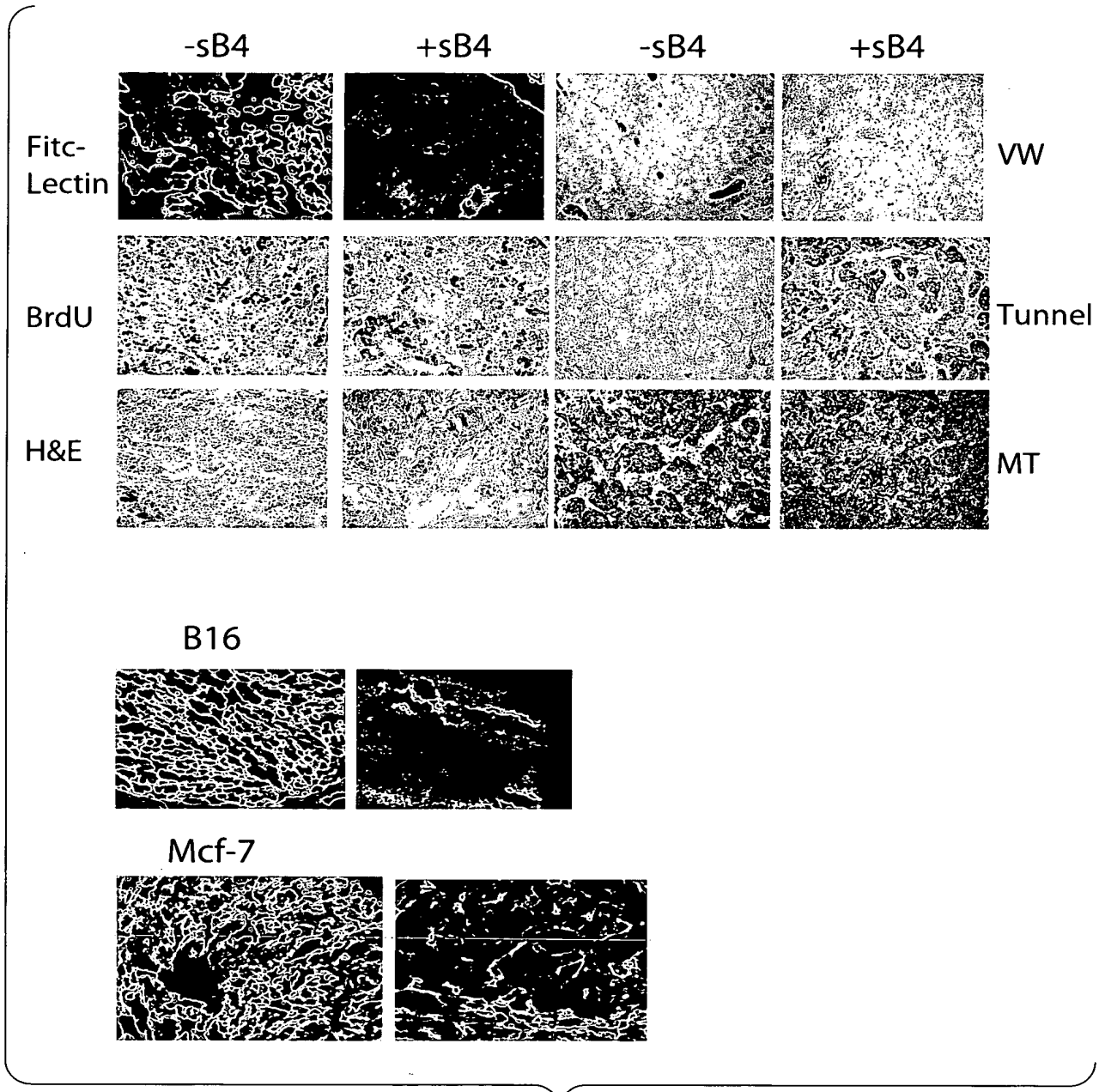


Fig. 26

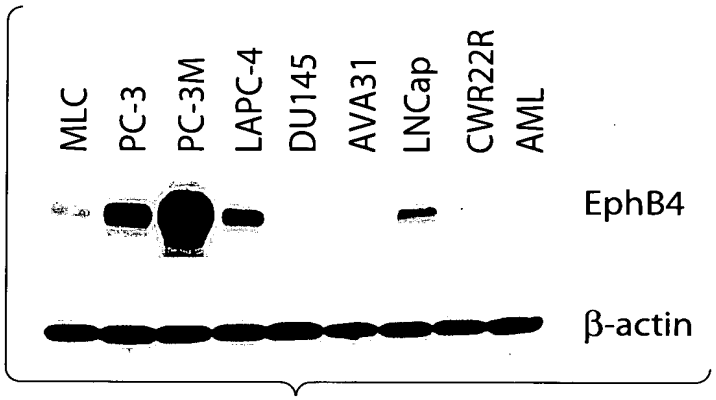


Fig. 27A

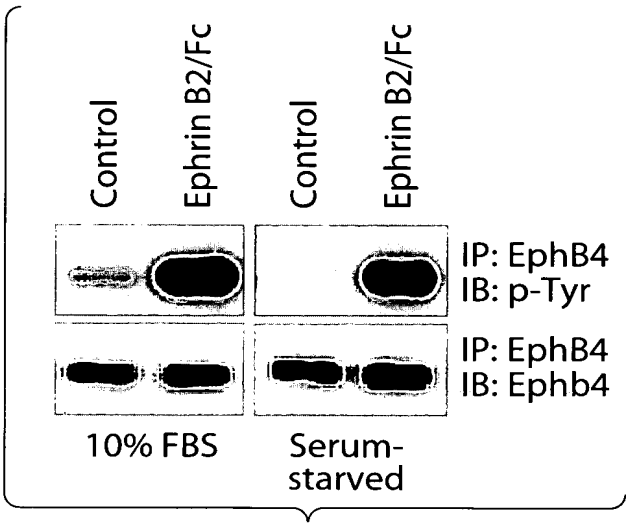
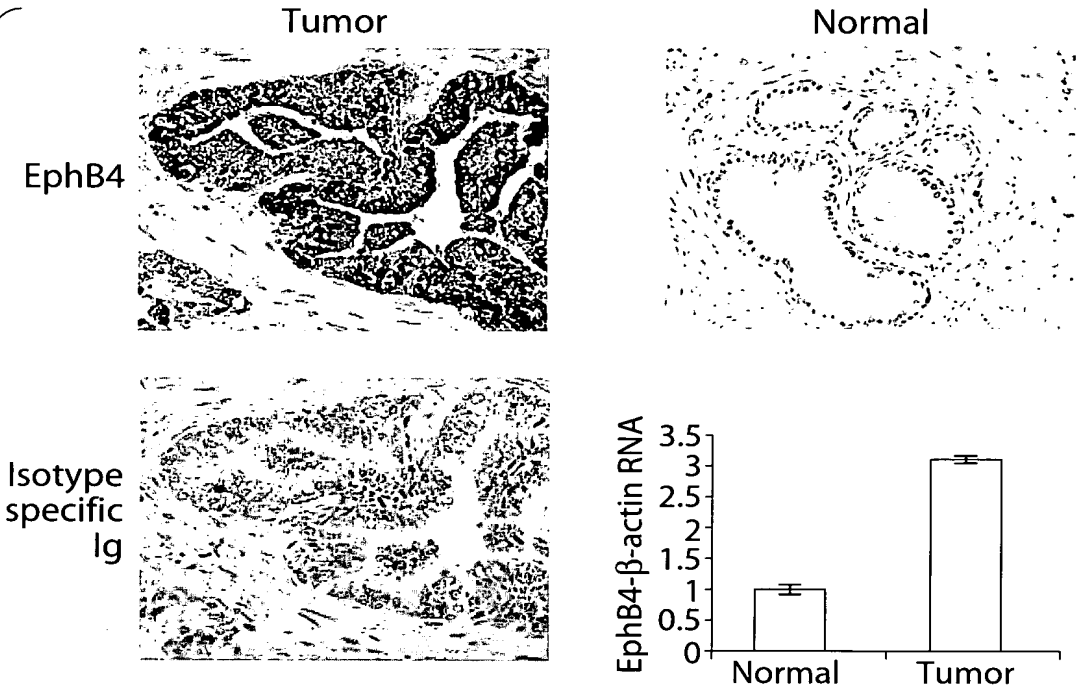


Fig. 27B



EPHB4 staining in prostate tissues array

	negative	positive
Normal (n = 20)	17	3
Tumor (n = 32)	8	24

$P = 3.8 \times 10^{-5}$ χ^2 analysis

Fig. 28

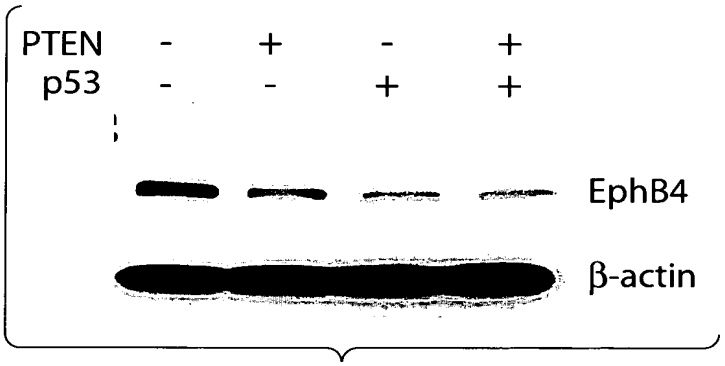


Fig. 29A

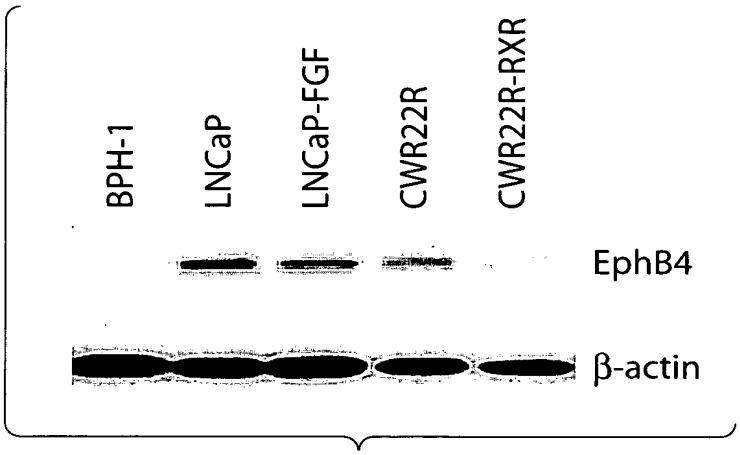


Fig. 29B

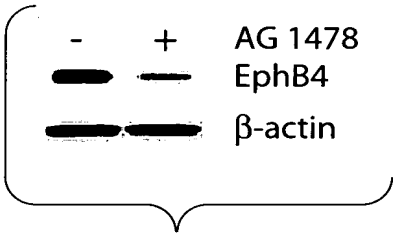


Fig. 30A

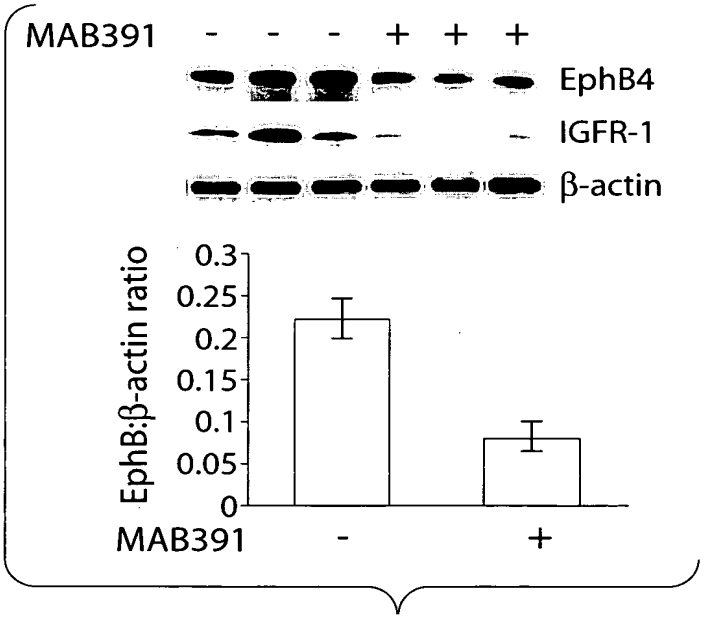


Fig. 30B

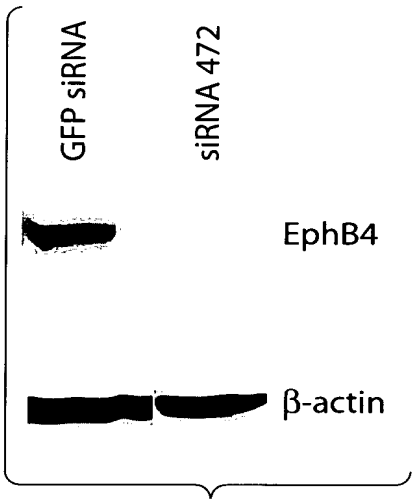


Fig. 31A

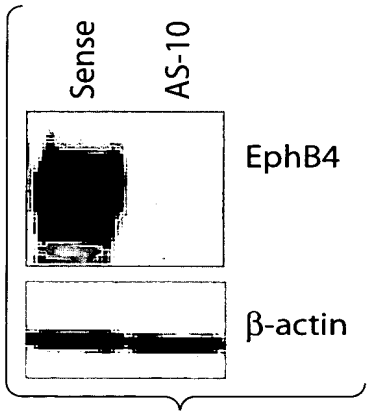


Fig. 31B

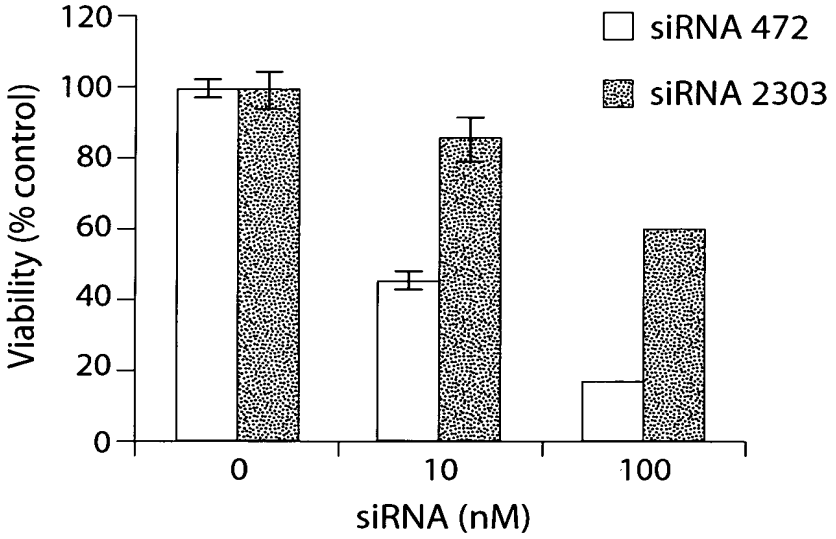


Fig. 31C

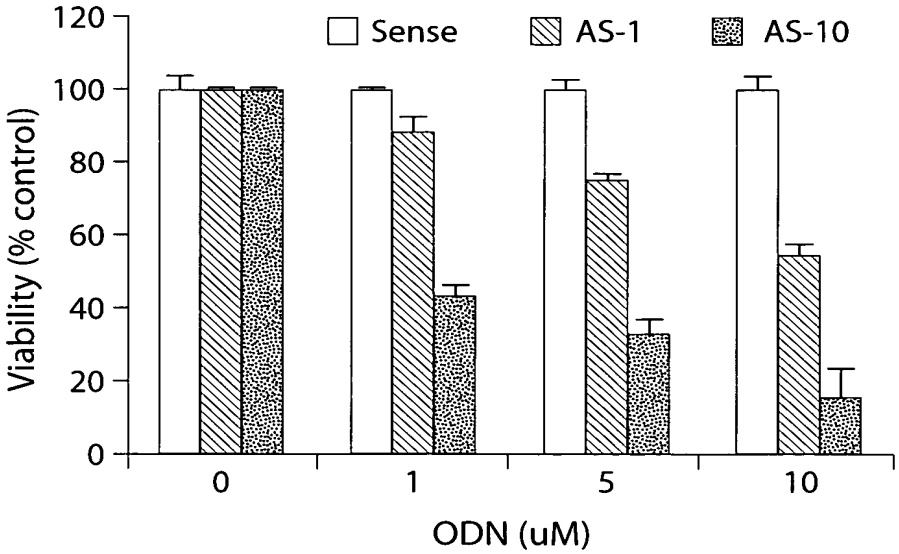


Fig. 31D

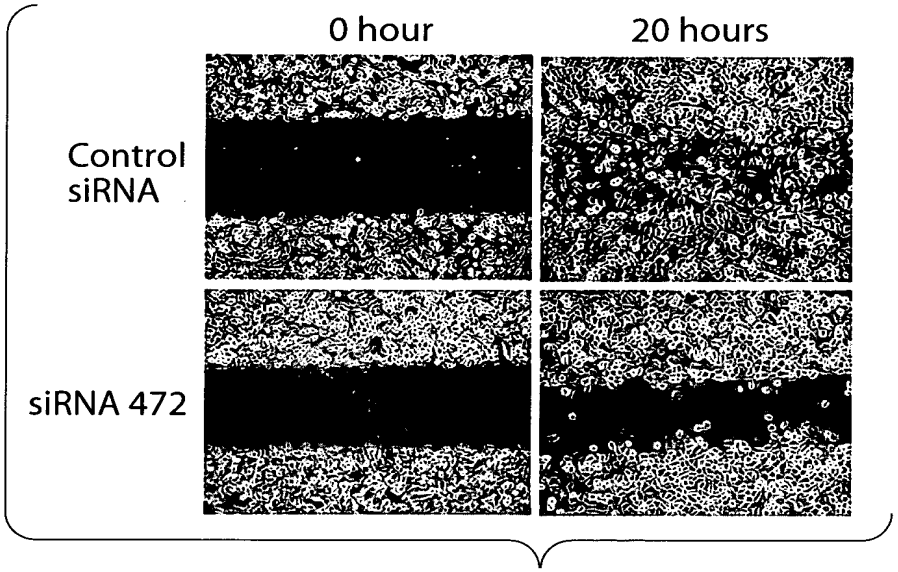


Fig. 31E

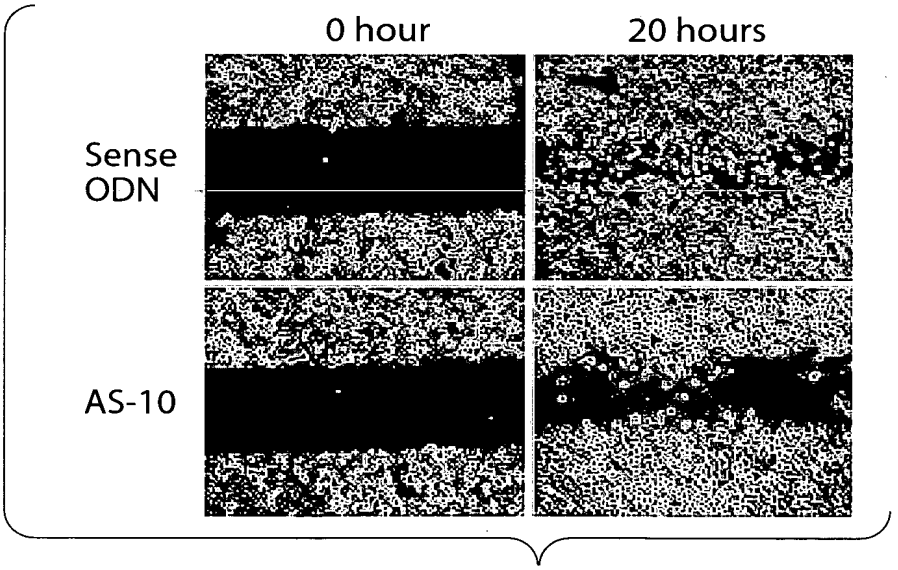


Fig. 31F

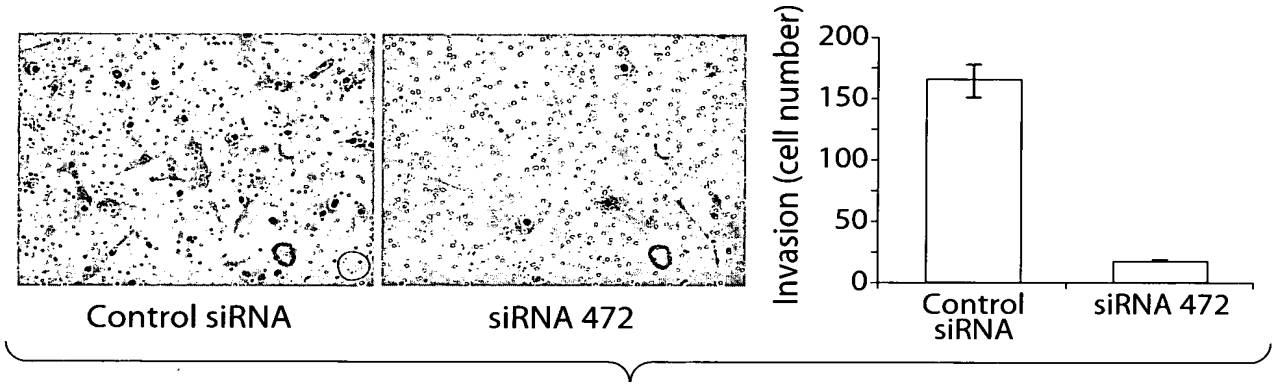

Control siRNA
siRNA 472
Invasion (cell number)
200
150
100
50
0
Control siRNA
siRNA 472

Fig. 31G

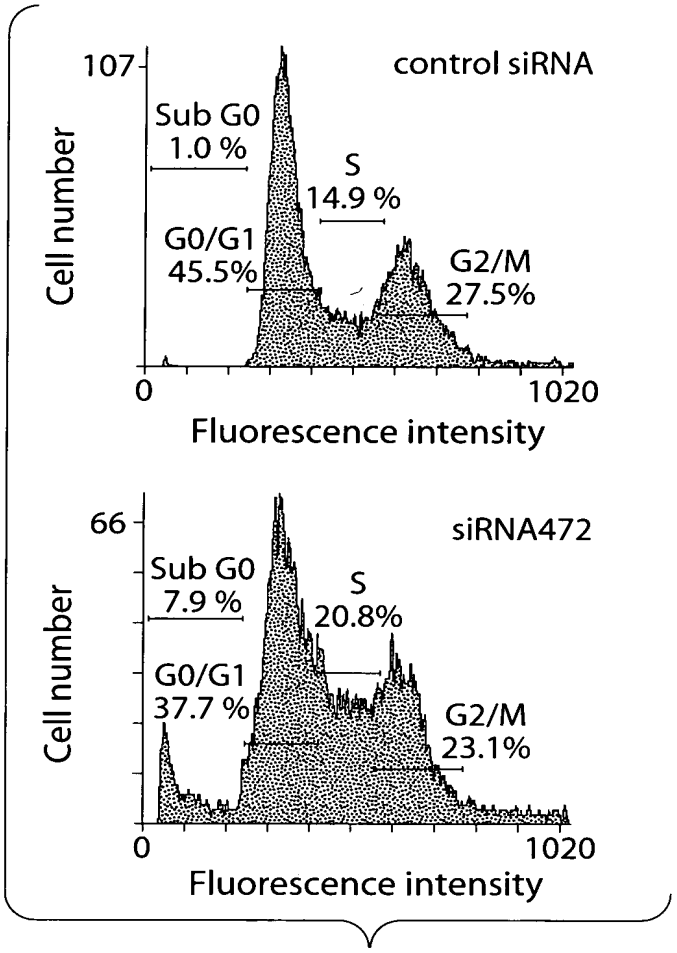


Fig. 32A

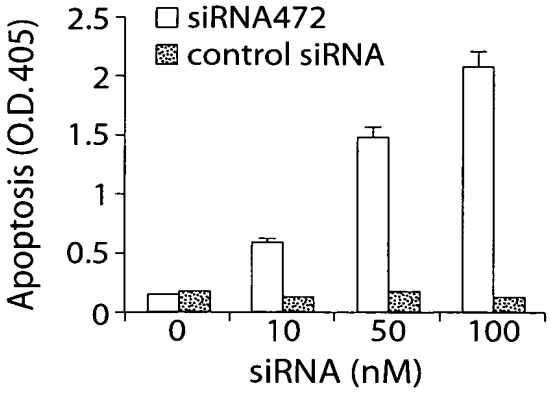


Fig. 32B

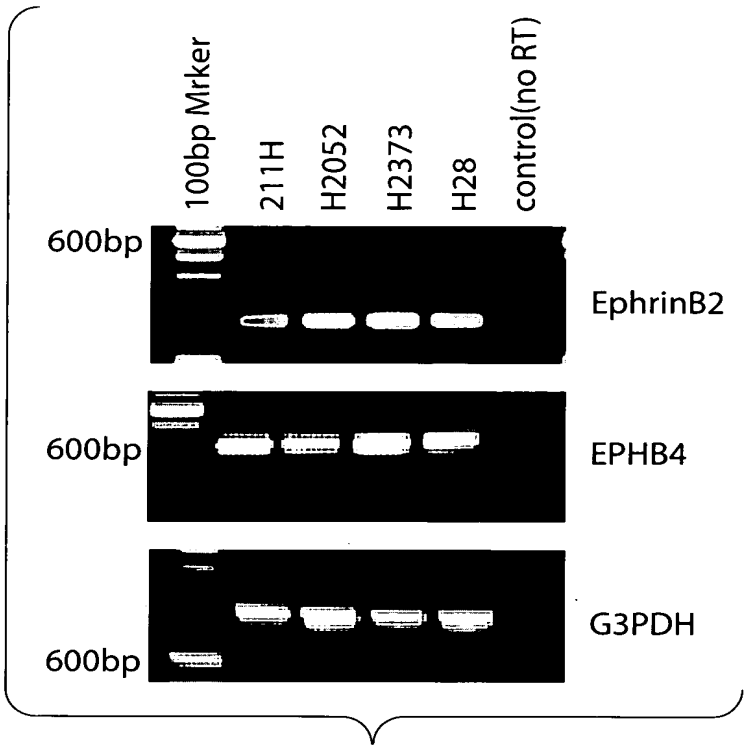


Fig. 33A

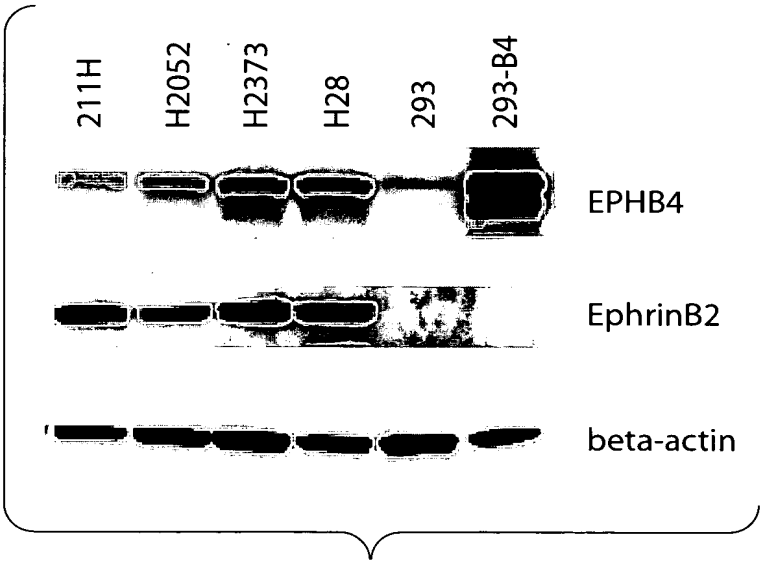


Fig. 33B

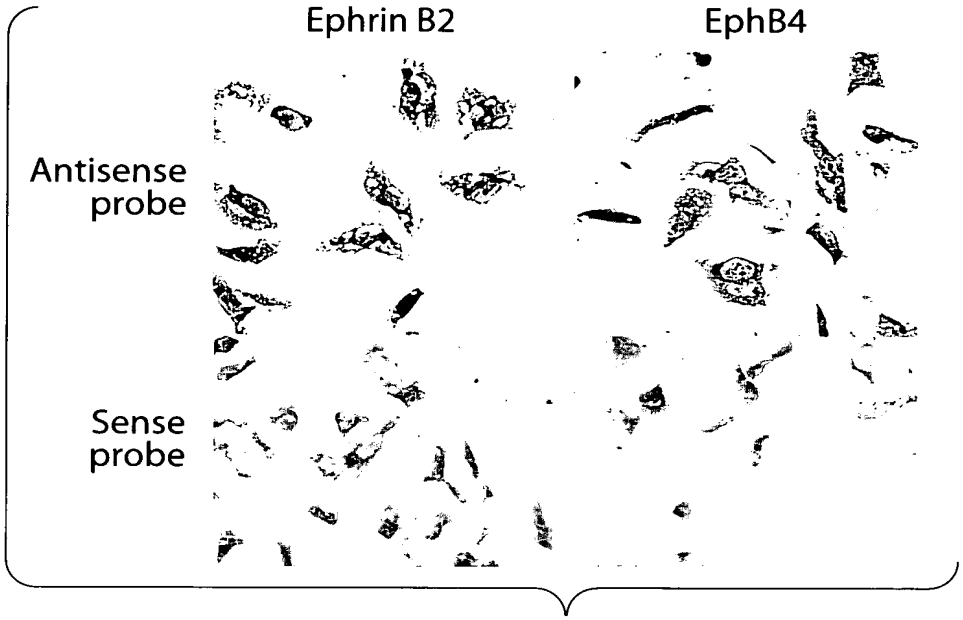


Fig. 34

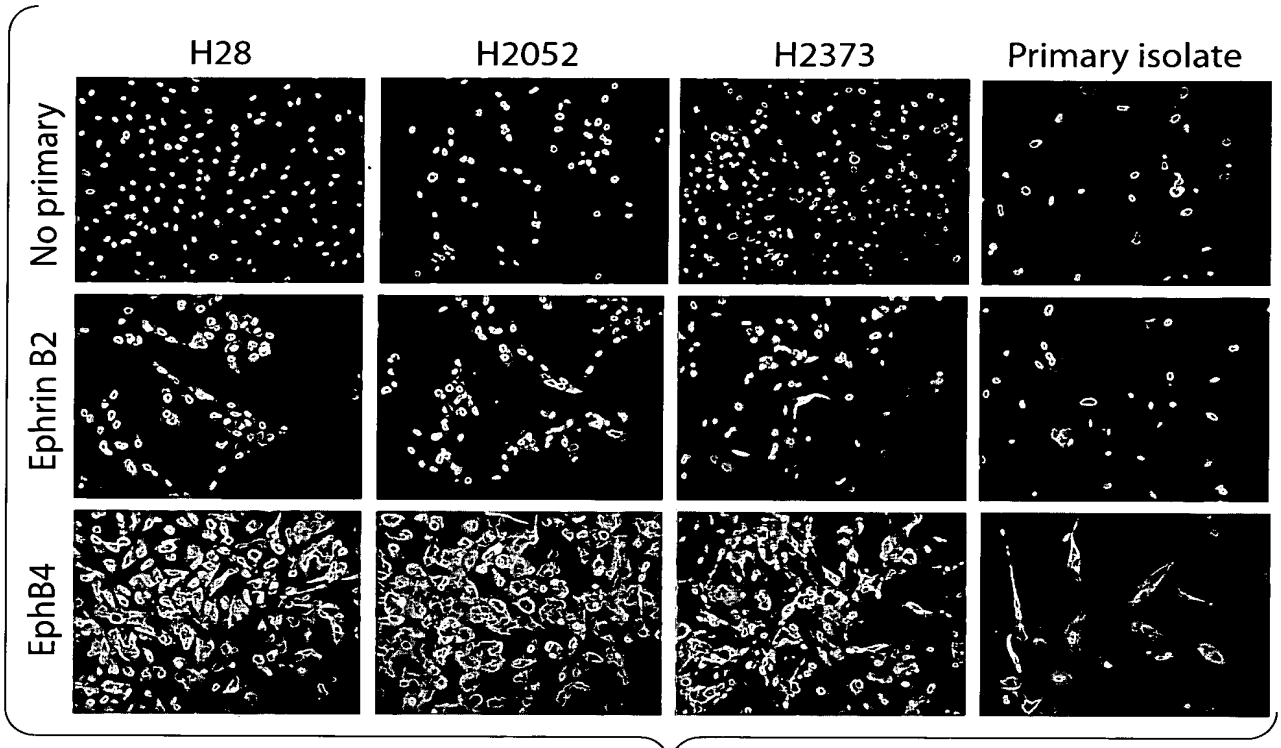


Fig. 35

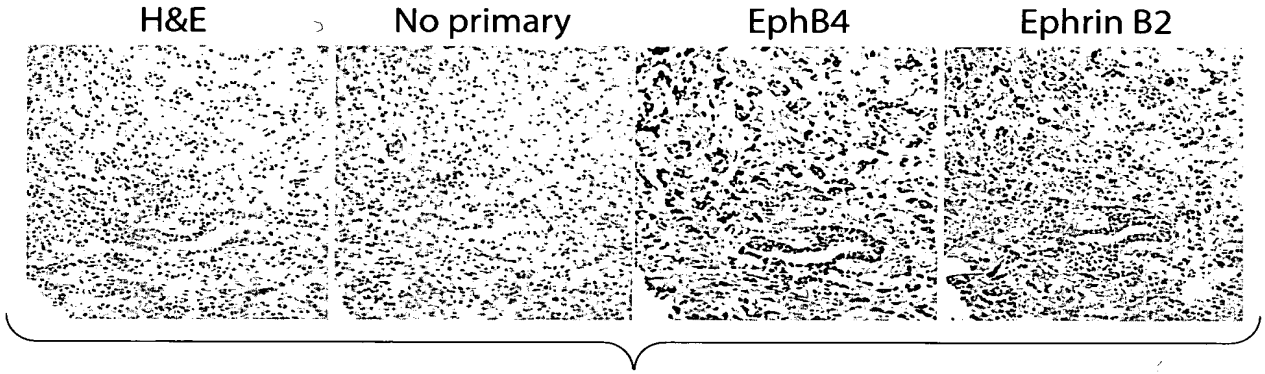


Fig. 36

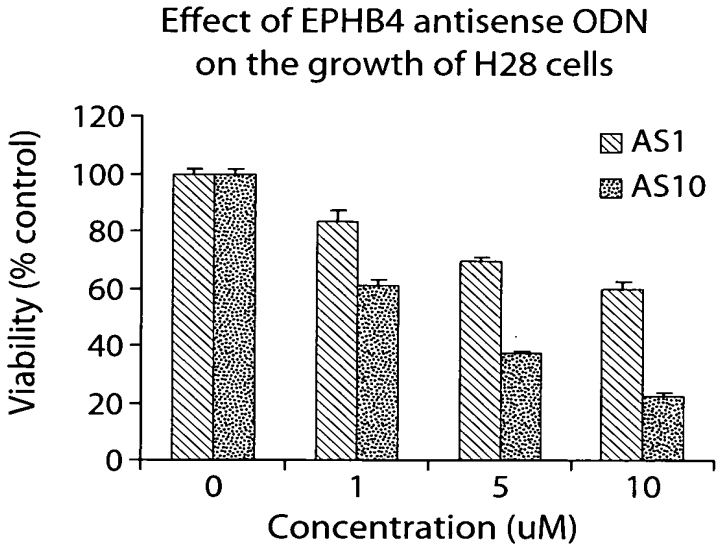


Fig. 37A

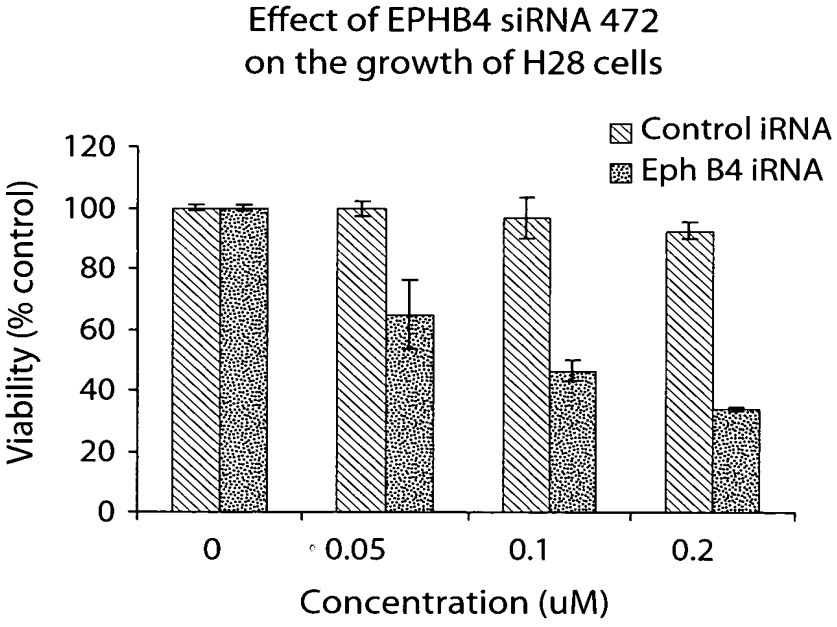


Fig. 37B

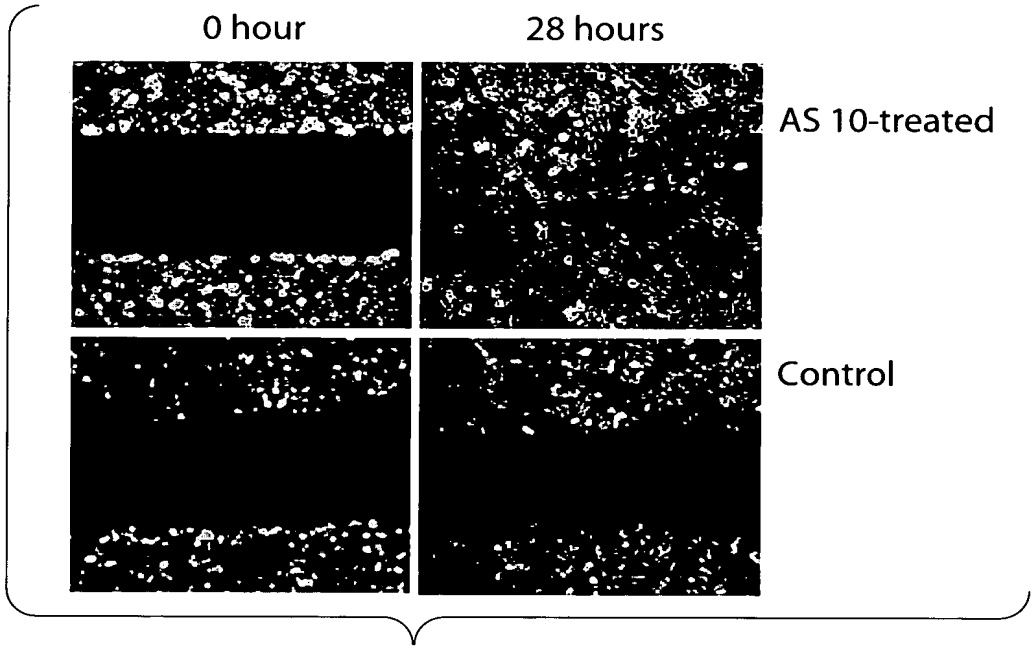


Fig. 38A

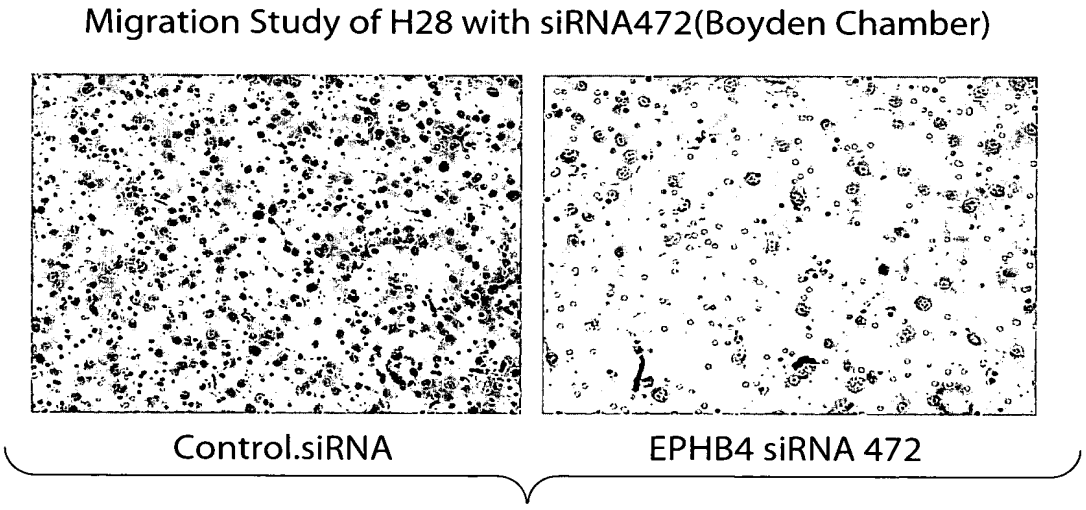


Fig. 38B

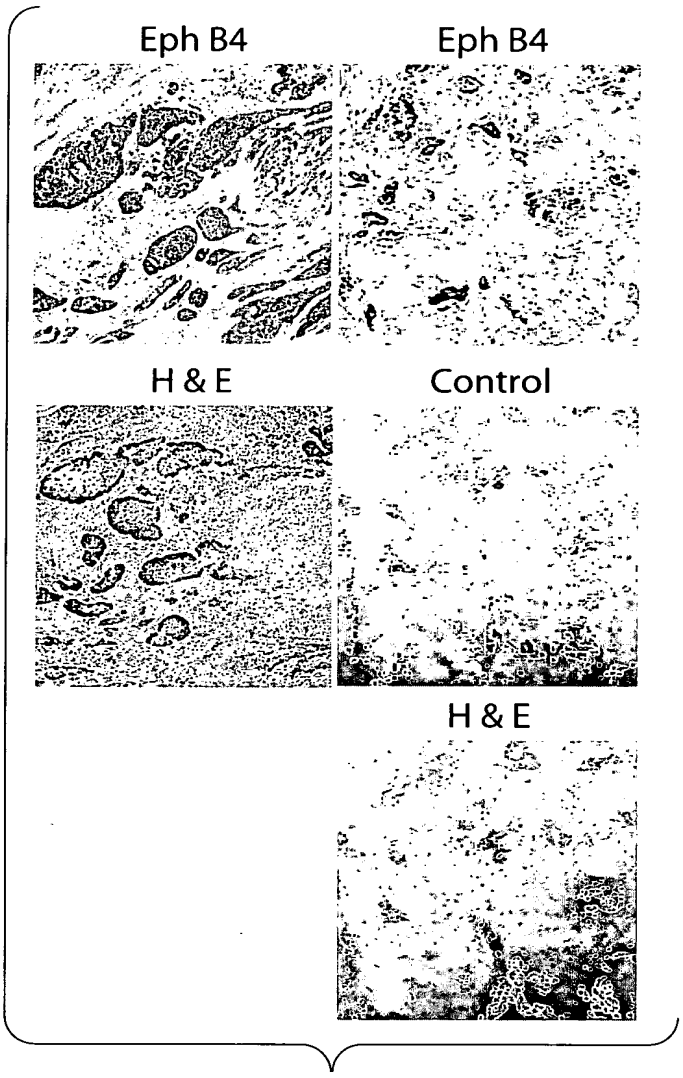


Fig. 39A

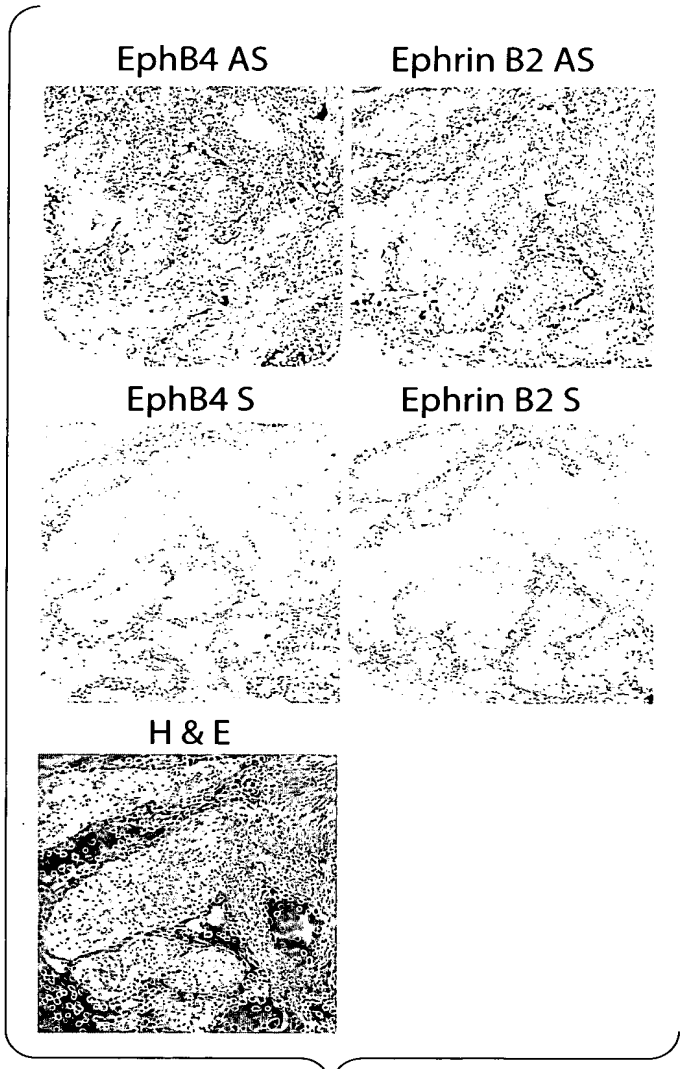


Fig. 39B

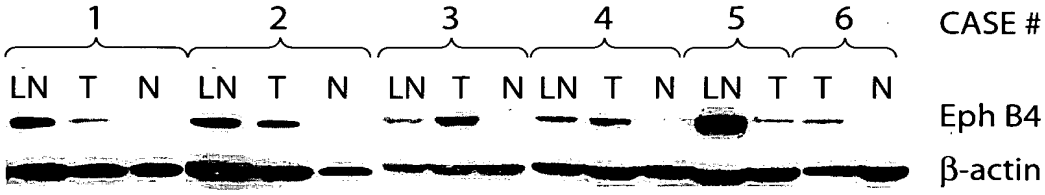


Fig. 39C

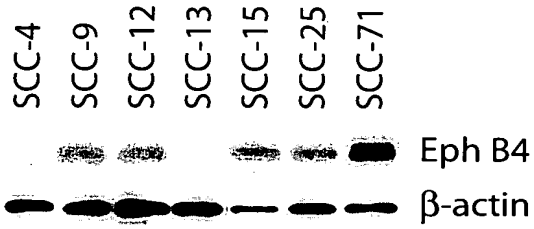


Fig. 40A

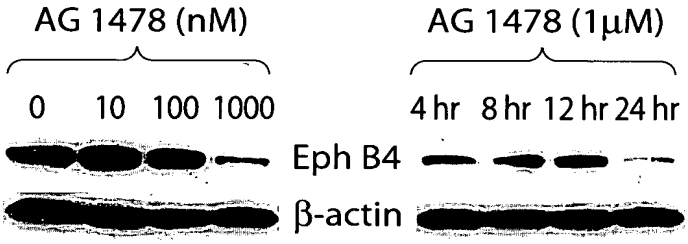


Fig. 40B

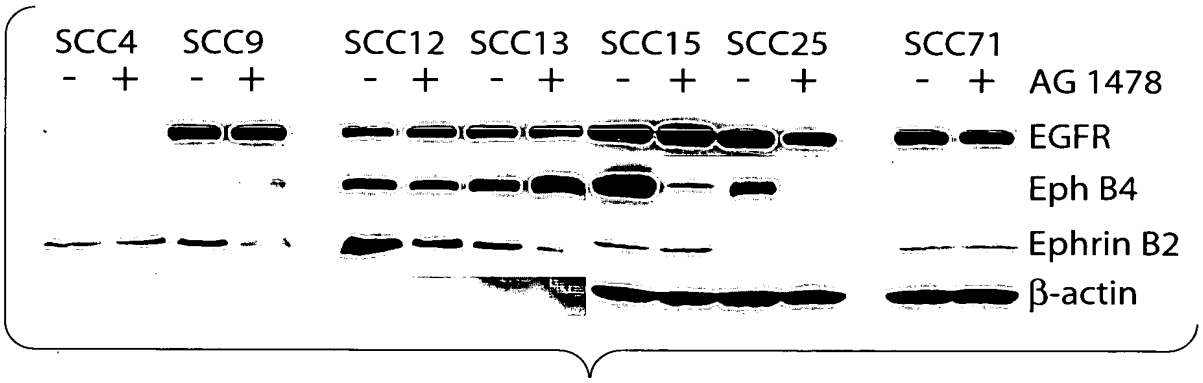


Fig. 40C

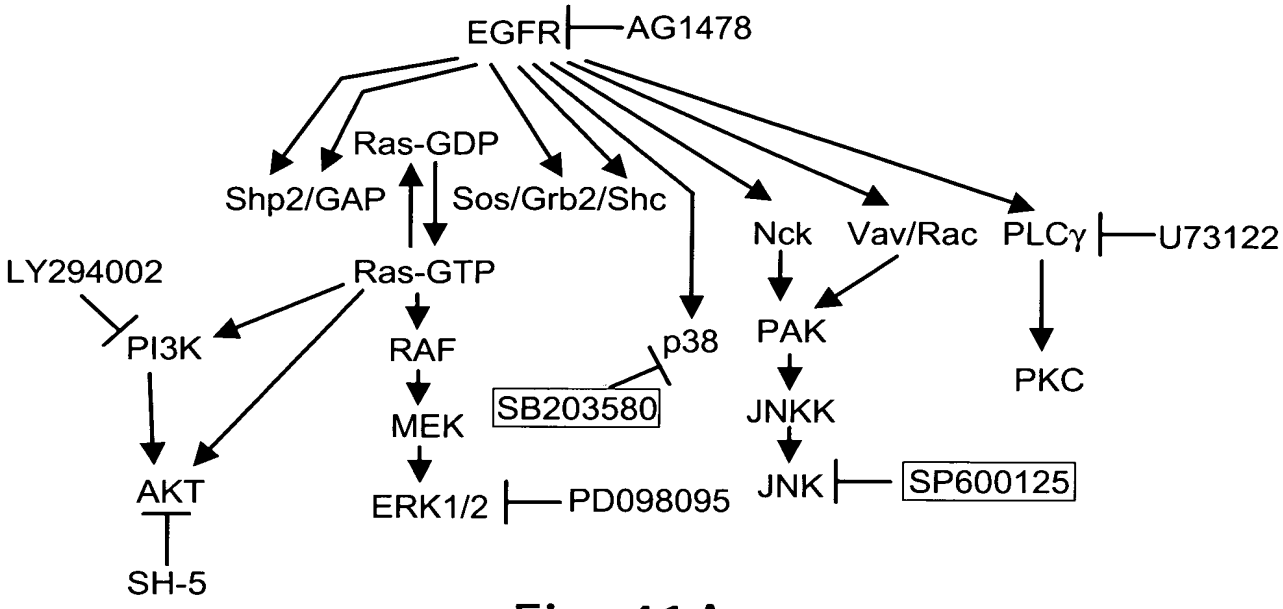


Fig. 41A

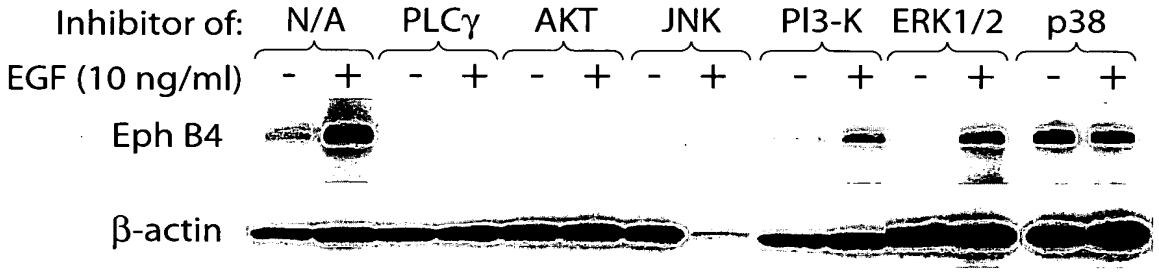


Fig. 41B

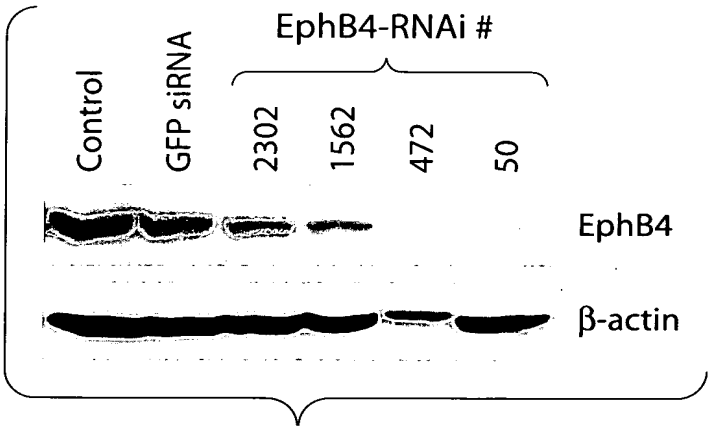


Fig. 42A

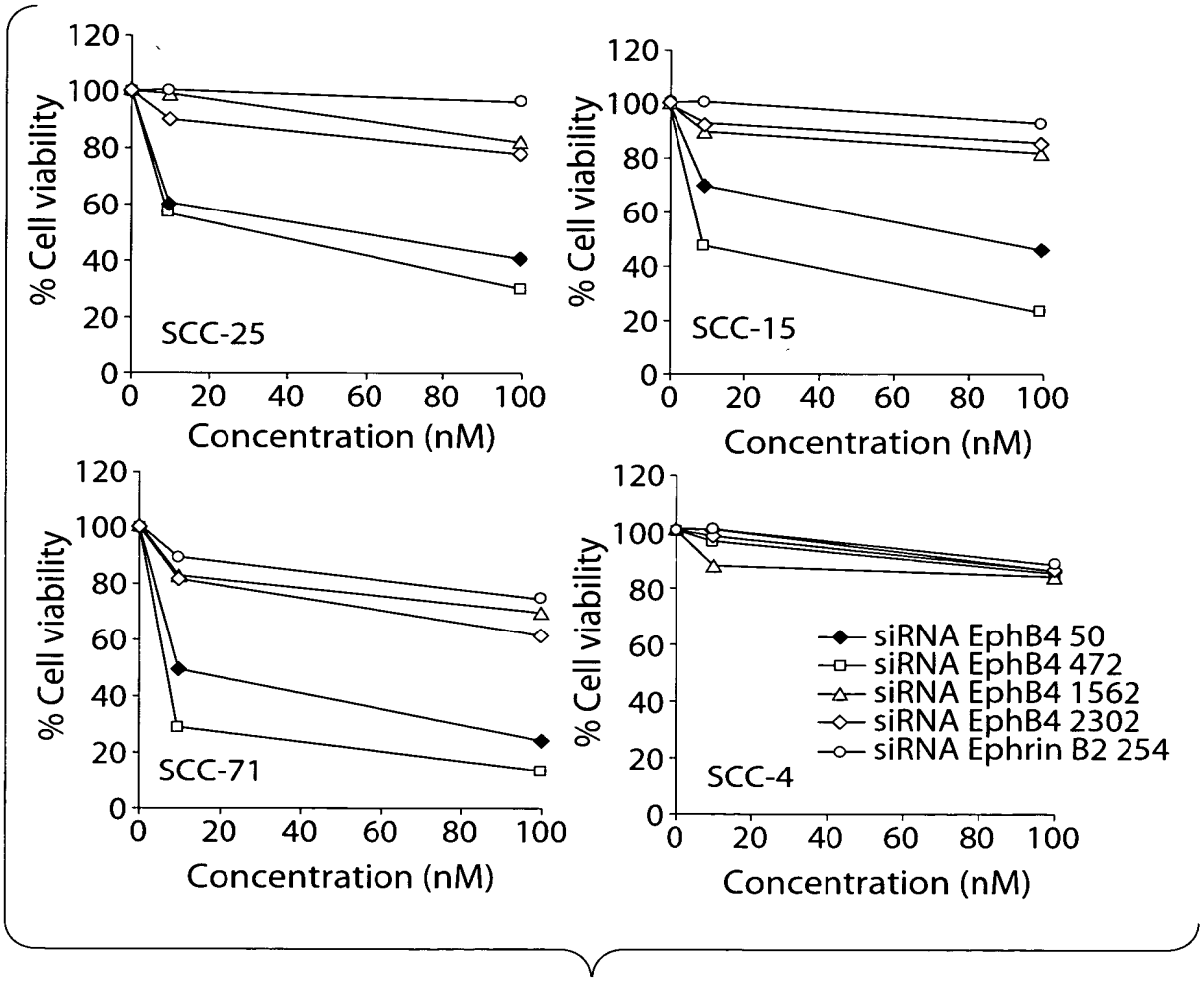


Fig. 42B

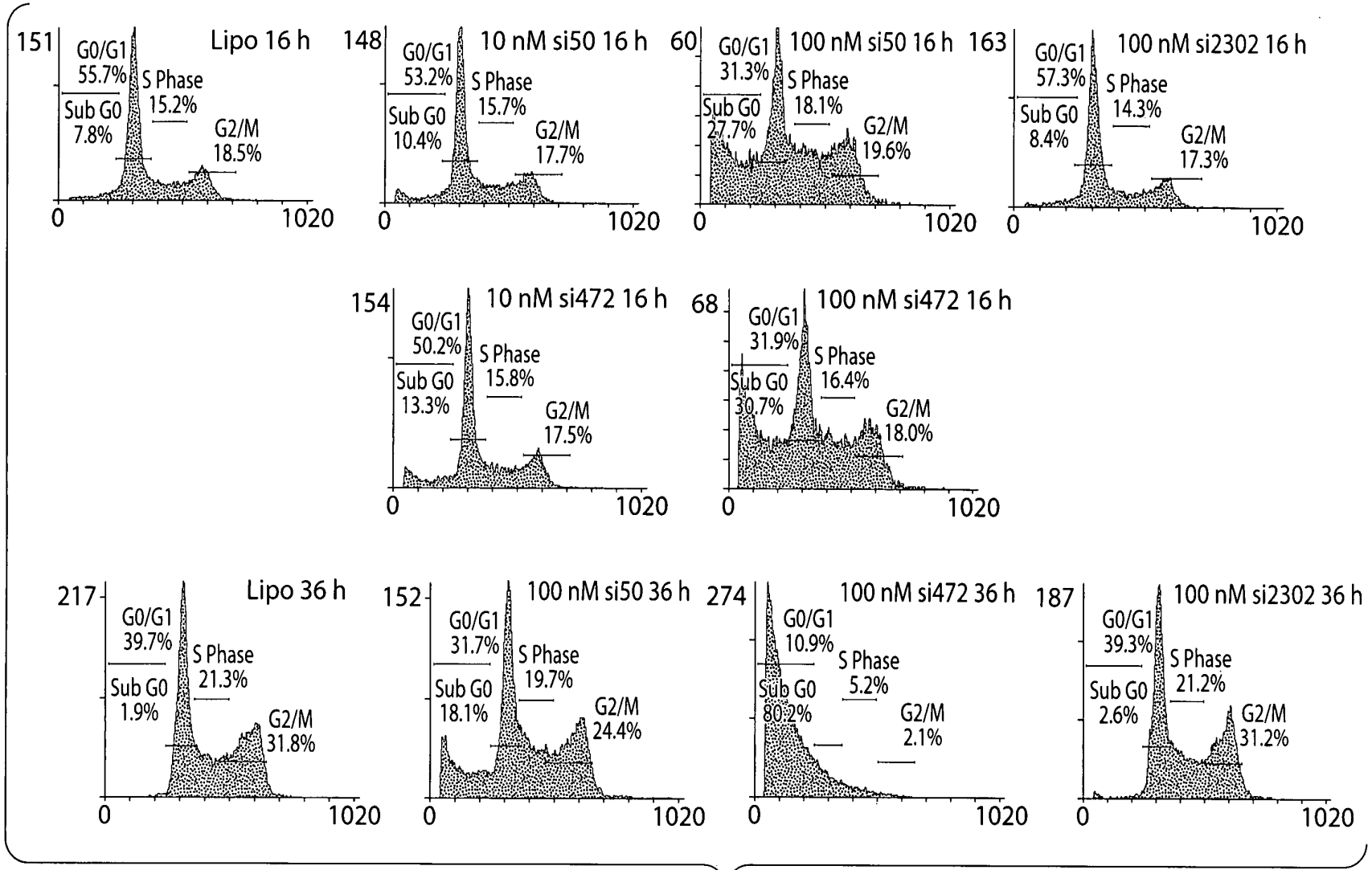

151
Lipo 16 h
G0/G1
55.7%
S Phase
15.2%
Sub G0
7.8%
G2/M
18.5%
0
1020
148
10 nM si50 16 h
G0/G1
53.2%
S Phase
15.7%
Sub G0
10.4%
G2/M
17.7%
0
1020
60
100 nM si50 16 h
G0/G1
31.3%
S Phase
18.1%
Sub G0
27.7%
G2/M
19.6%
0
1020
163
100 nM si2302 16 h
G0/G1
57.3%
S Phase
14.3%
Sub G0
8.4%
G2/M
17.3%
0
1020
154
10 nM si472 16 h
G0/G1
50.2%
S Phase
15.8%
Sub G0
13.3%
G2/M
17.5%
0
1020
68
100 nM si472 16 h
G0/G1
31.9%
S Phase
16.4%
Sub G0
30.7%
G2/M
18.0%
0
1020
217
Lipo 36 h
G0/G1
39.7%
S Phase
21.3%
Sub G0
1.9%
G2/M
31.8%
0
1020
152
100 nM si50 36 h
G0/G1
31.7%
S Phase
19.7%
Sub G0
18.1%
G2/M
24.4%
0
1020
274
100 nM si472 36 h
G0/G1
10.9%
S Phase
5.2%
Sub G0
80.2%
G2/M
2.1%
0
1020
187
100 nM si2302 36 h
G0/G1
39.3%
S Phase
21.2%
Sub G0
2.6%
G2/M
31.2%
0
1020

Fig. 42C

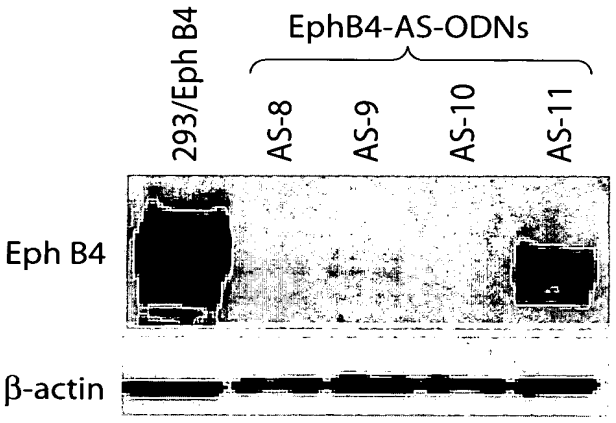


Fig. 43A

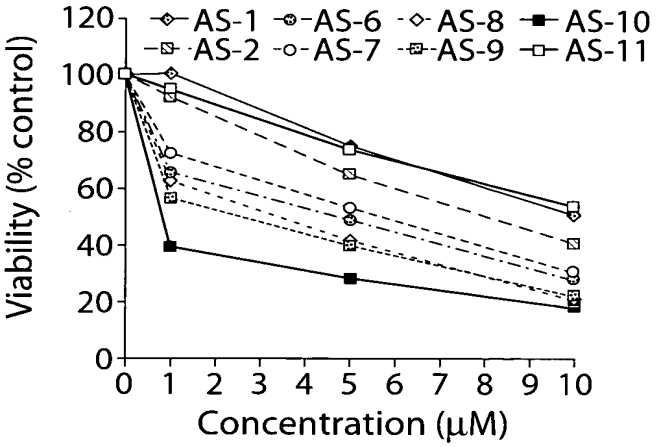


Fig. 43B

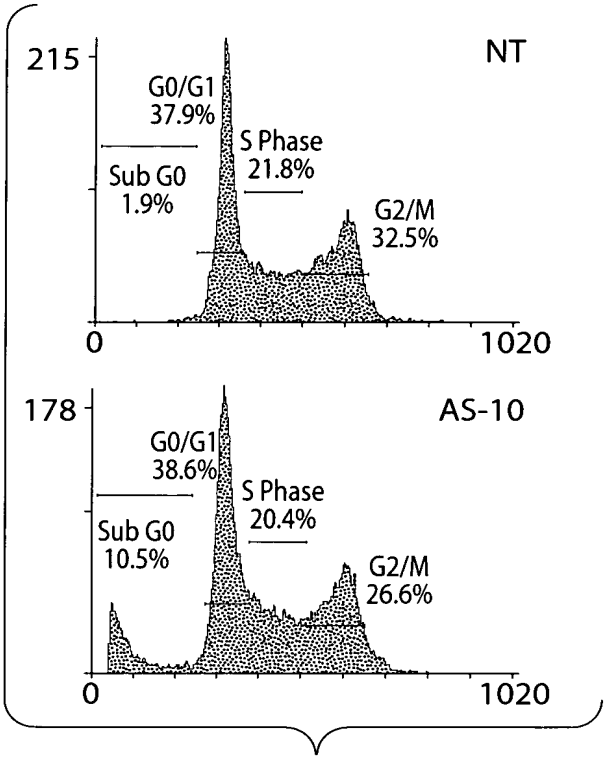

215
NT
G0/G1
37.9%
S Phase
21.8%
Sub G0
1.9%
G2/M
32.5%
0
1020
178
AS-10
G0/G1
38.6%
S Phase
20.4%
Sub G0
10.5%
G2/M
26.6%
0
1020

Fig. 43C

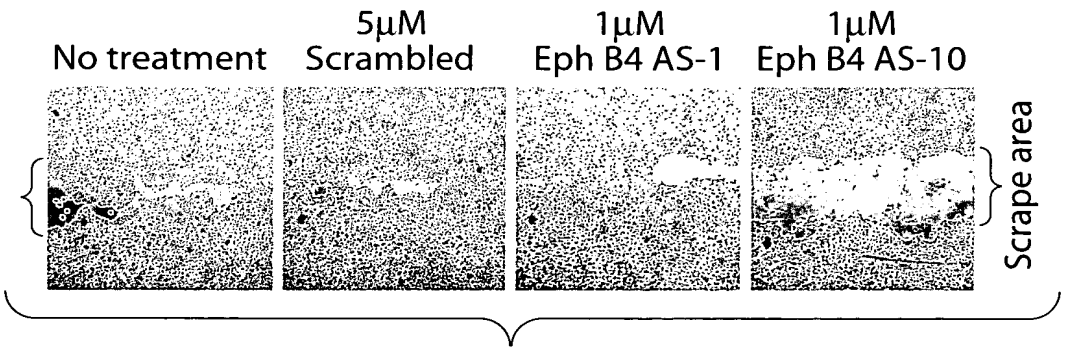


Fig. 43D

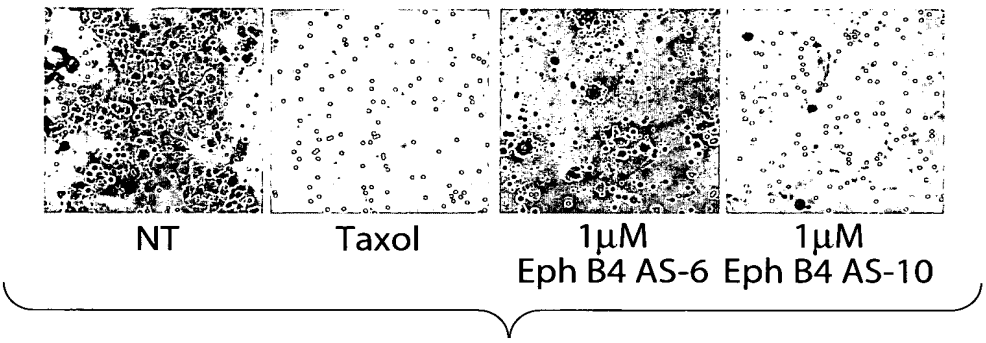


Fig. 43E

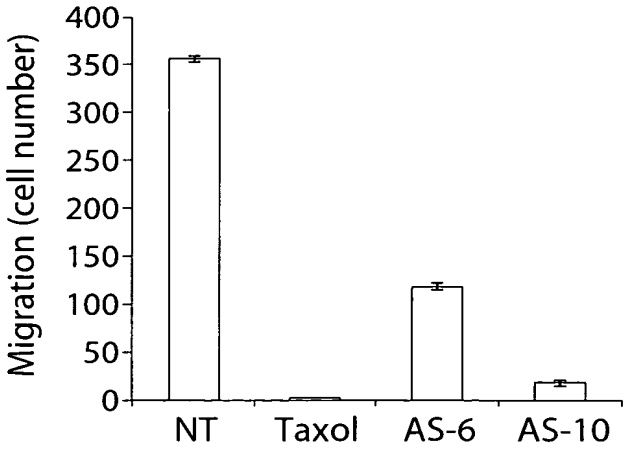


Fig. 43F

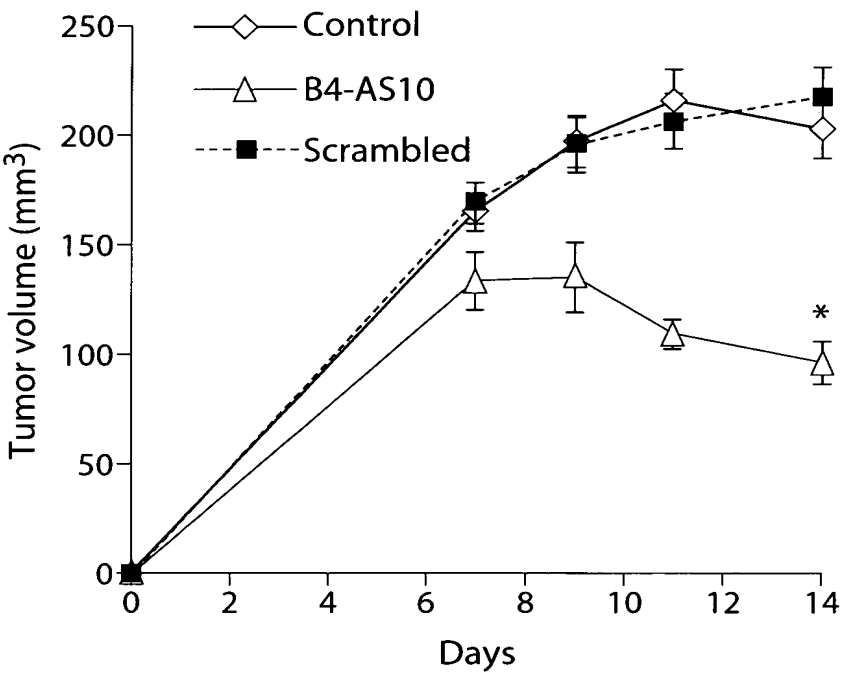

Control
B4-AS10
Scrambled
Tumor volume (mm3)
250
200
150
100
50
0
0
2
4
6
8
10
12
14
Days
*

Fig. 44

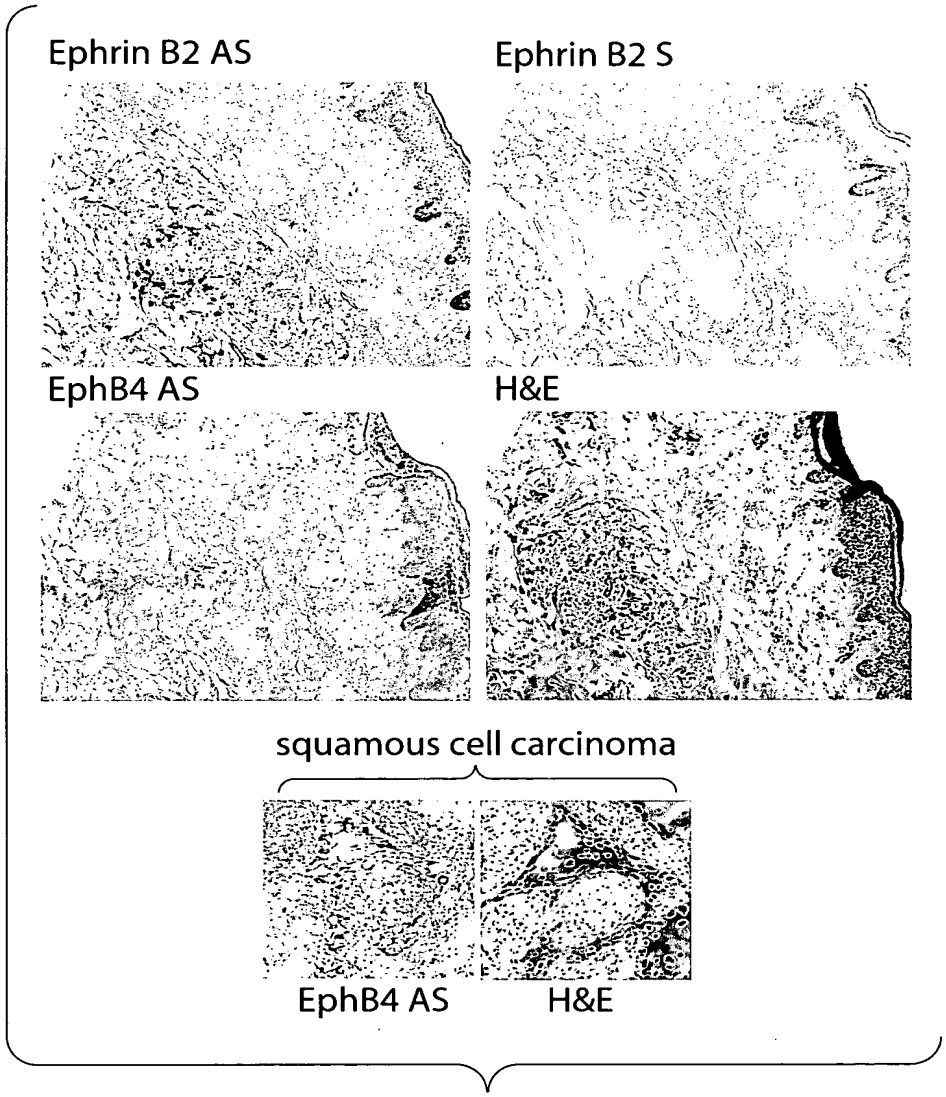

Ephrin B2 AS
Ephrin B2 S
EphB4 AS
H&E
squamous cell carcinoma
EphB4 AS
H&E

Fig. 45A

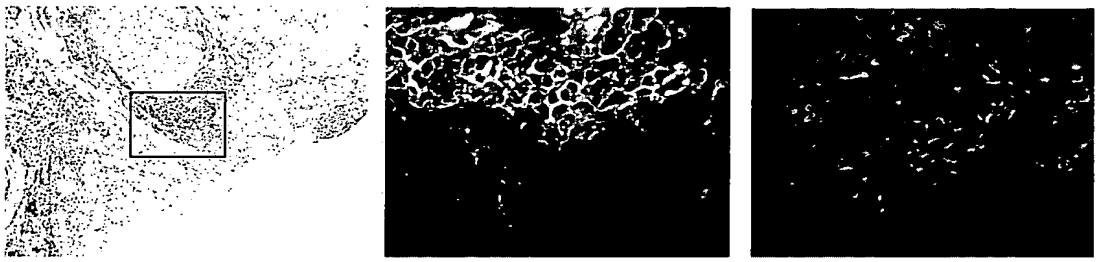


Fig. 45B

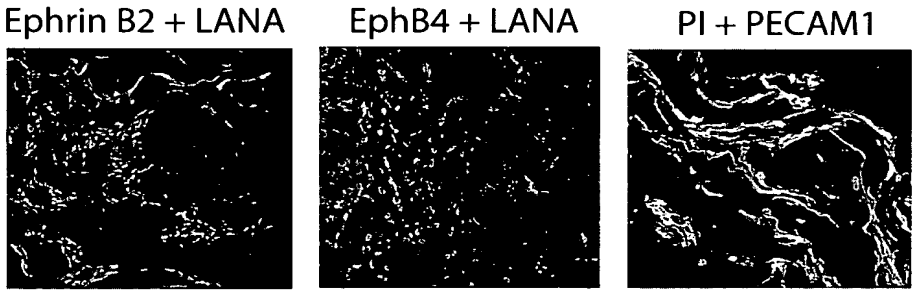


Fig. 45C

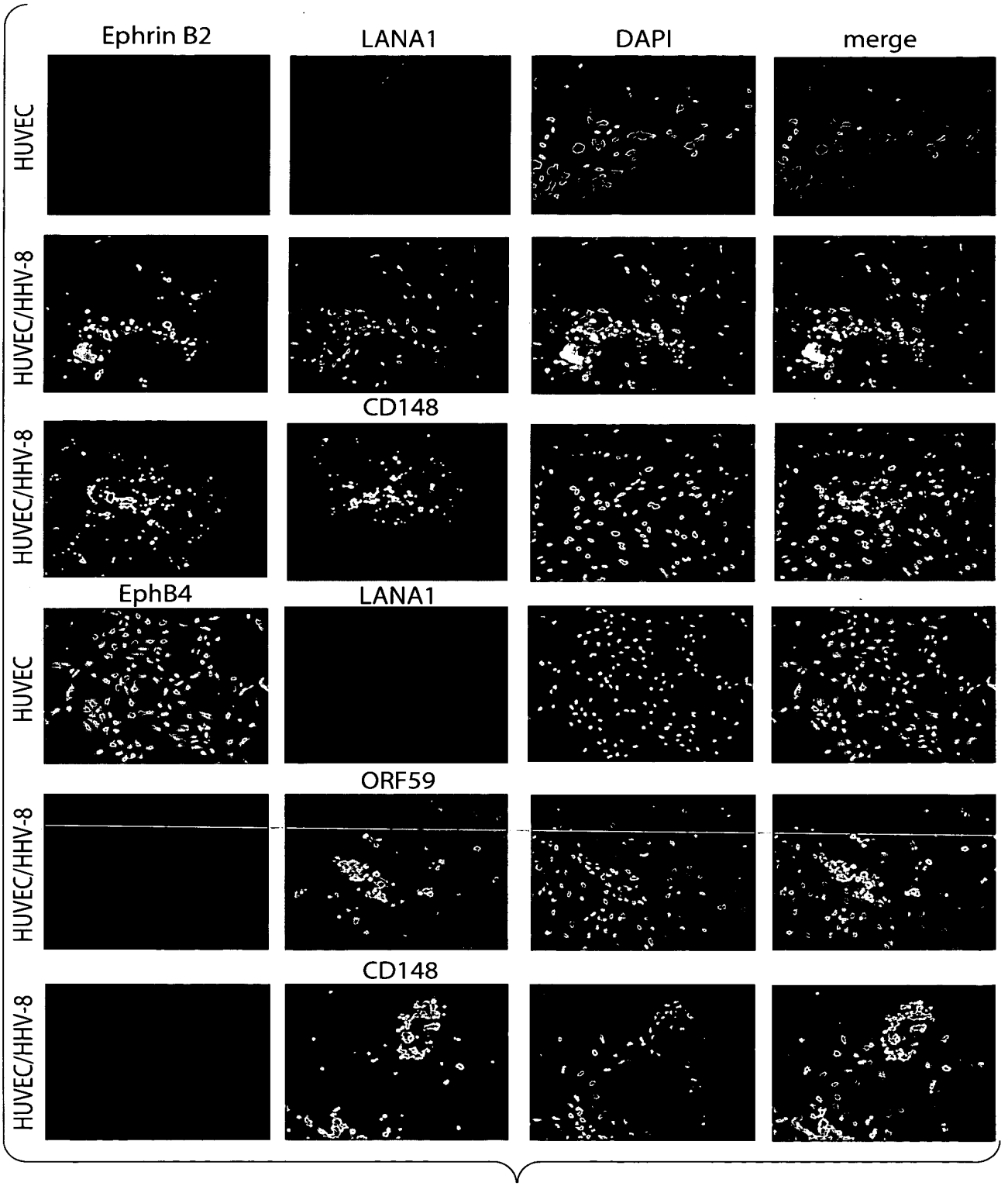

Ephrin B2
LANA1
DAPI
merge
HUVEC
HUVEC/HHV-8
CD148
HUVEC/HHV-8
EphB4
LANA1
HUVEC
ORF59
HUVEC/HHV-8
CD148
HUVEC/HHV-8

Fig. 46A

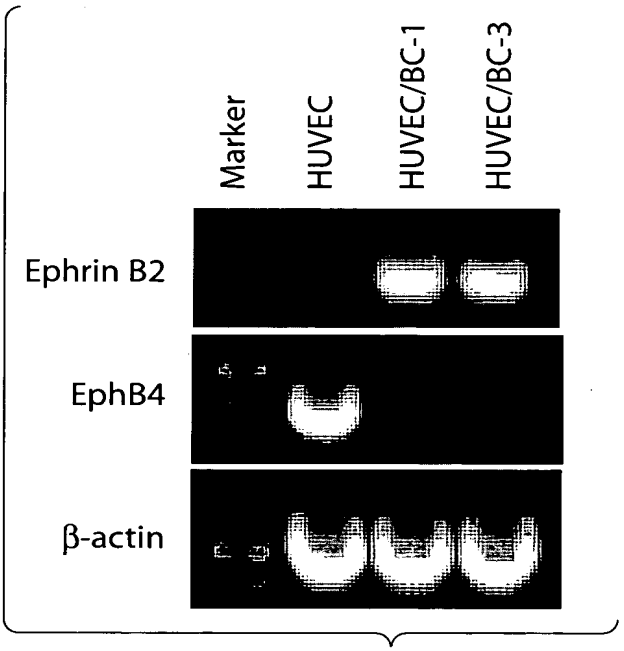


Fig. 46B

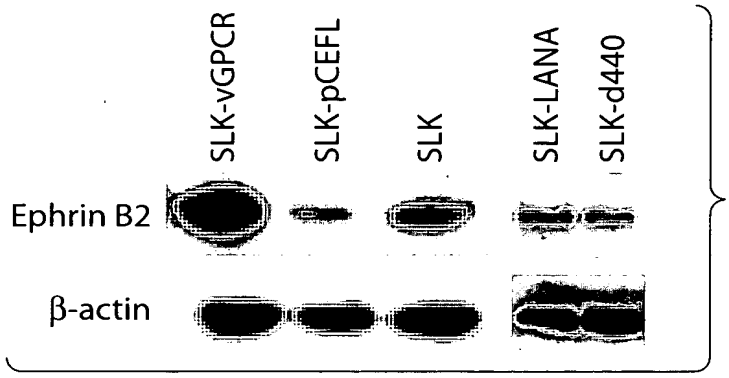


Fig. 47A

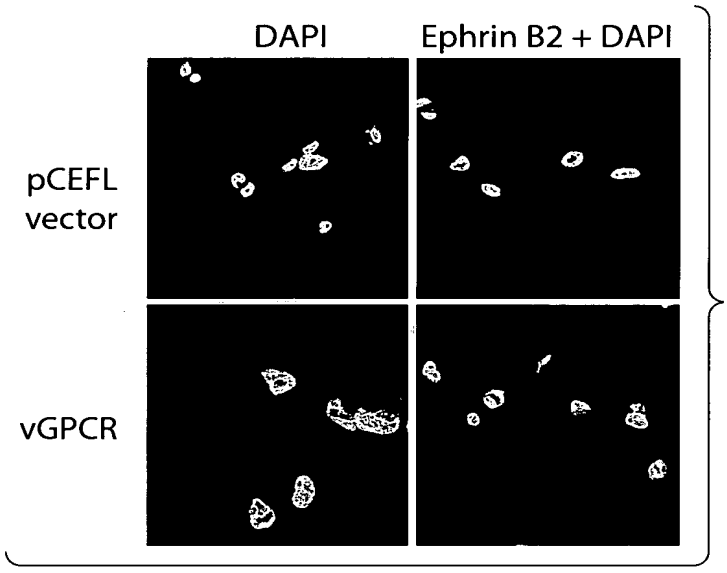


Fig. 47B

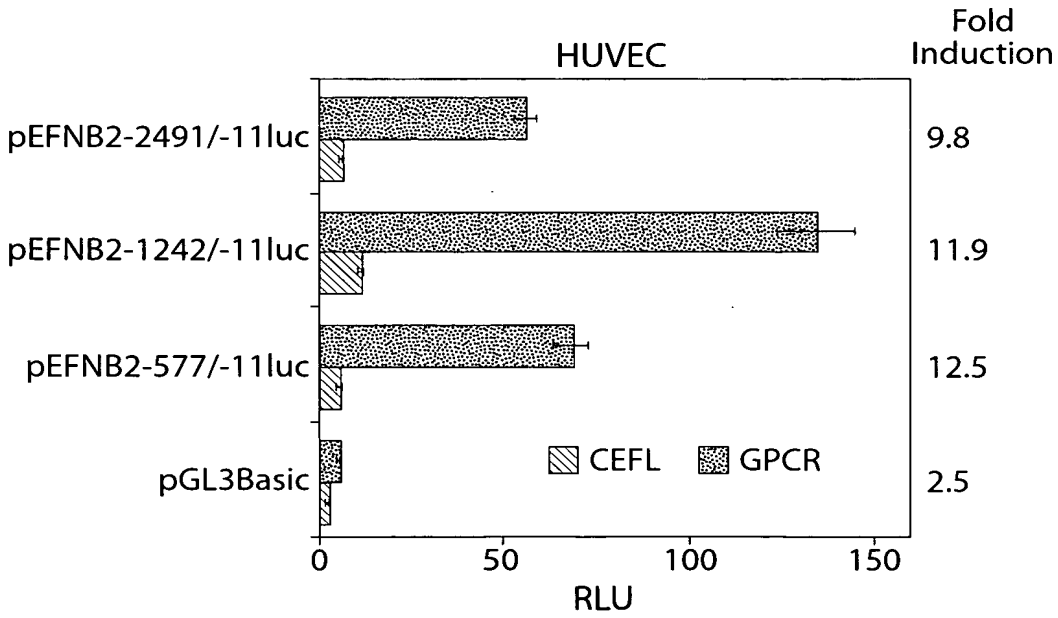


Fig. 47C

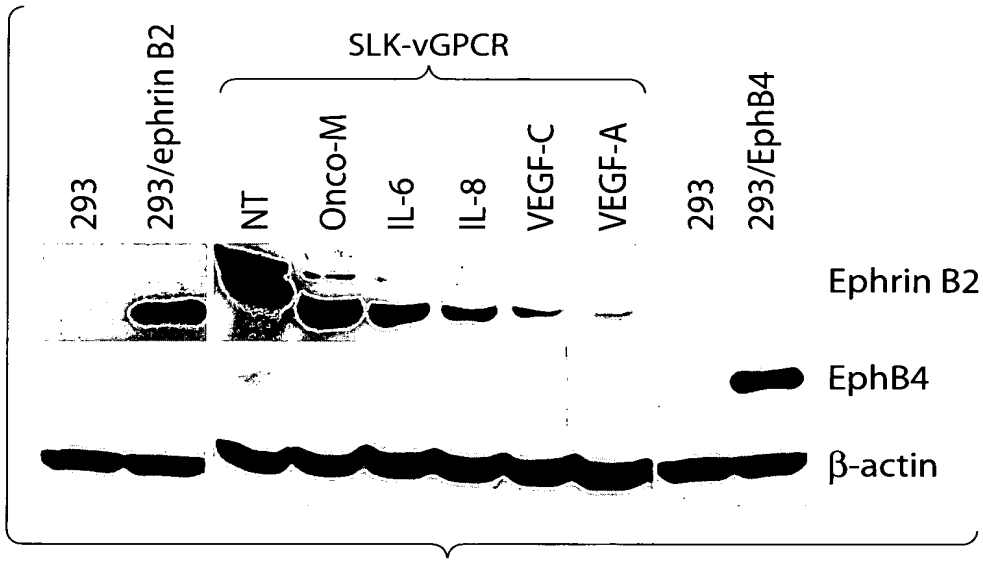


Fig. 48A

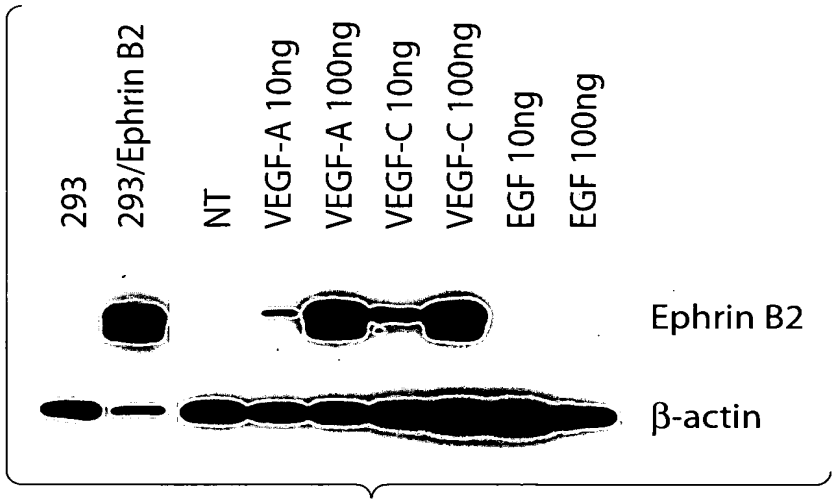


Fig. 48B

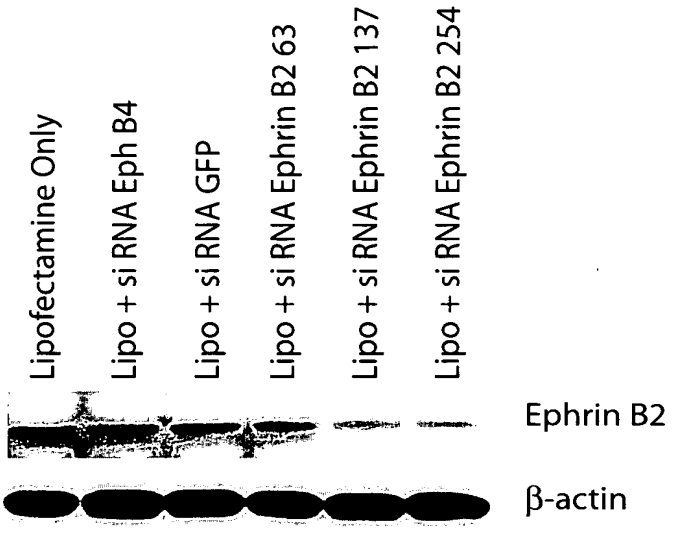


Fig. 49A

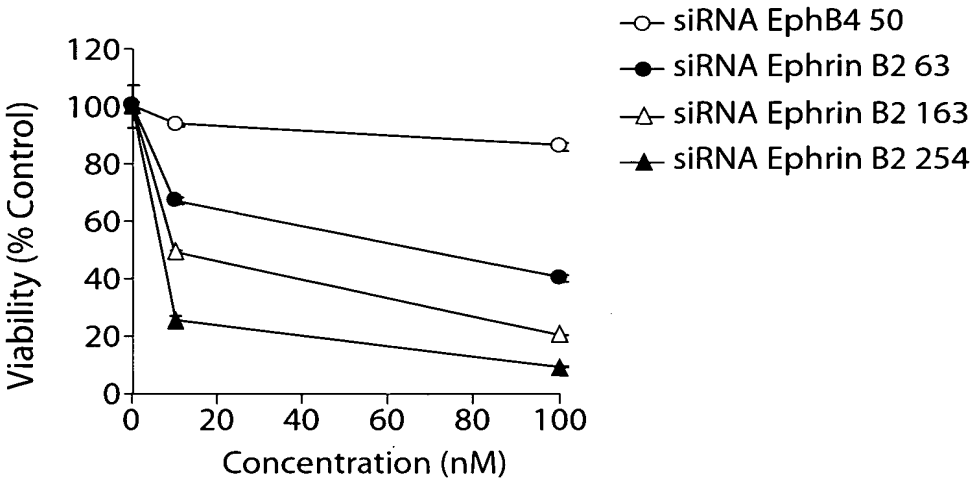


Fig. 49B

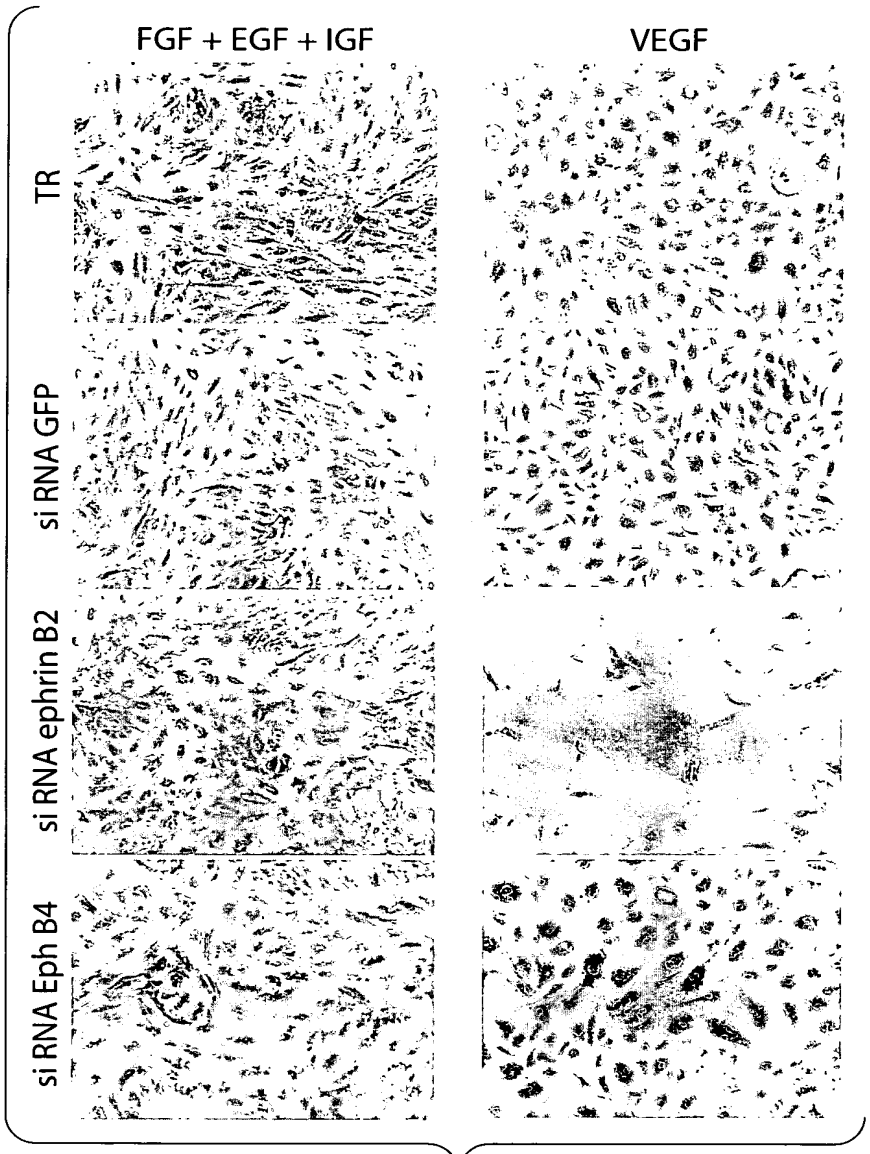


Fig. 49C

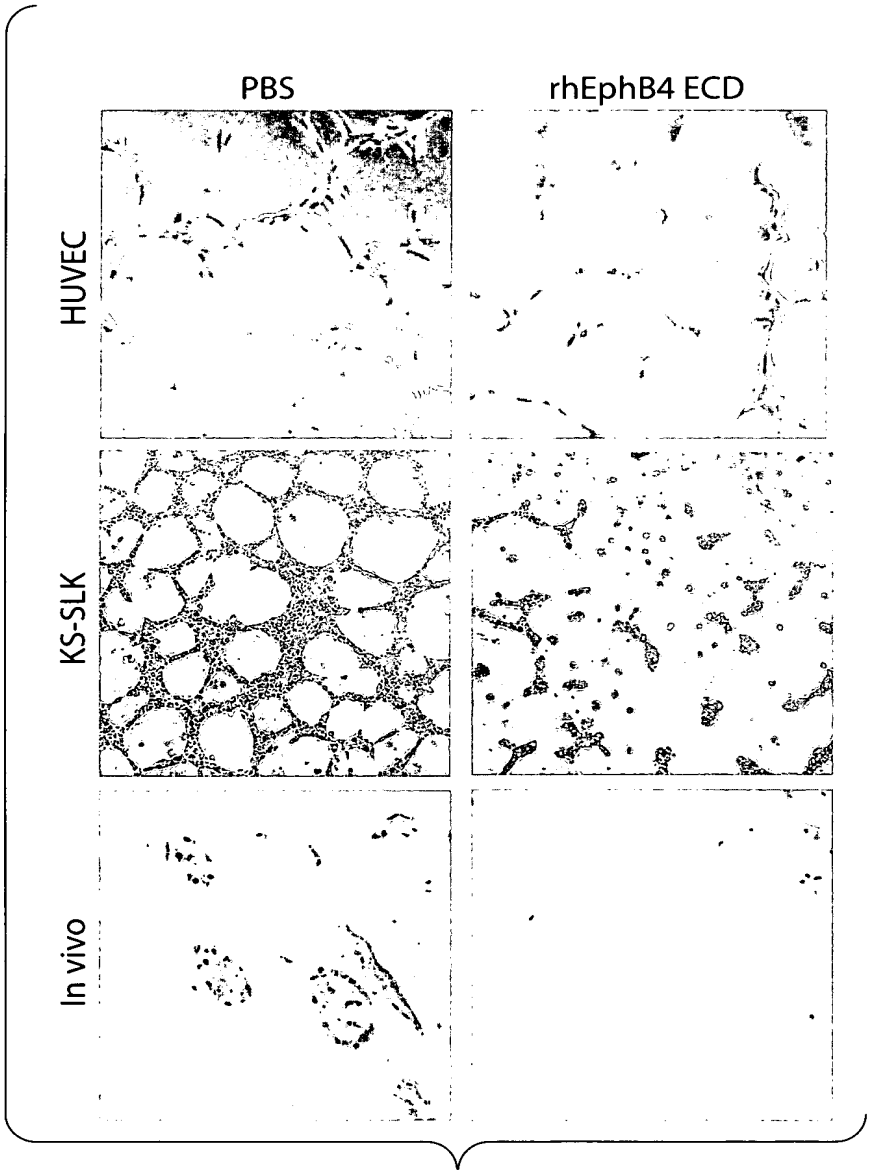


Fig. 50

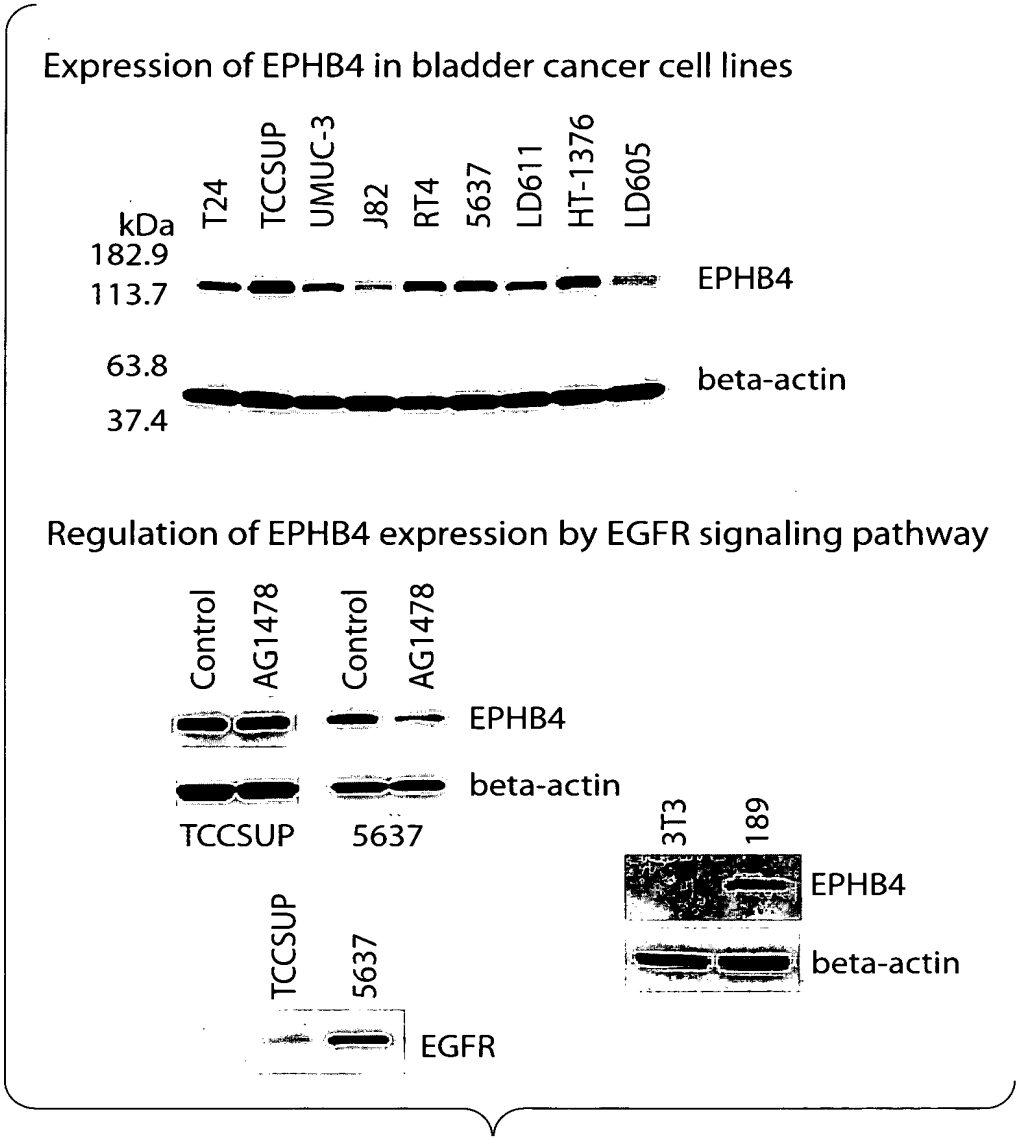

Expression of EPHB4 in bladder cancer cell lines
kDa
T24
TCCSUP
UMUC-3
J82
RT4
5637
LD611
HT-1376
LD605
182.9
113.7
EPHB4
63.8
37.4
beta-actin
Regulation of EPHB4 expression by EGFR signaling pathway
Control
AG1478
Control
AG1478
EPHB4
beta-actin
TCCSUP
5637
3T3
189
EPHB4
beta-actin
TCCSUP
5637
EGFR

Fig. 51

Transfection of p53 inhibit the expression of EPHB4 in 5637 cell

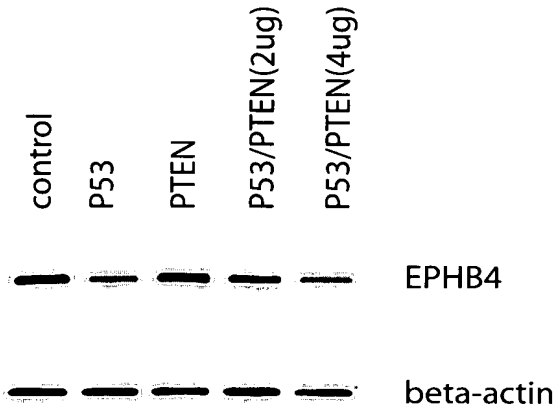


Fig. 52

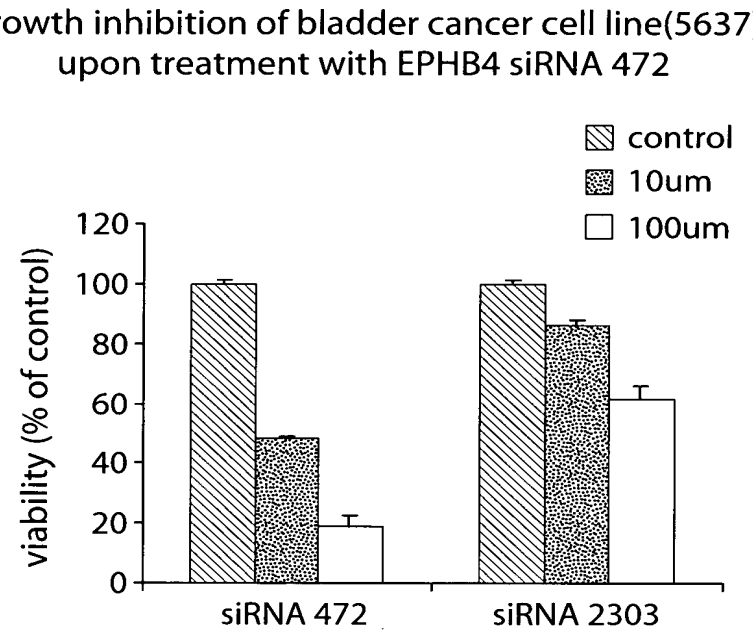

Growth inhibition of bladder cancer cell line(5637)
upon treatment with EPHB4 siRNA 472
control
10um
100um
viability (% of control)
120
100
80
60
40
20
0
siRNA 472
siRNA 2303

Fig. 53

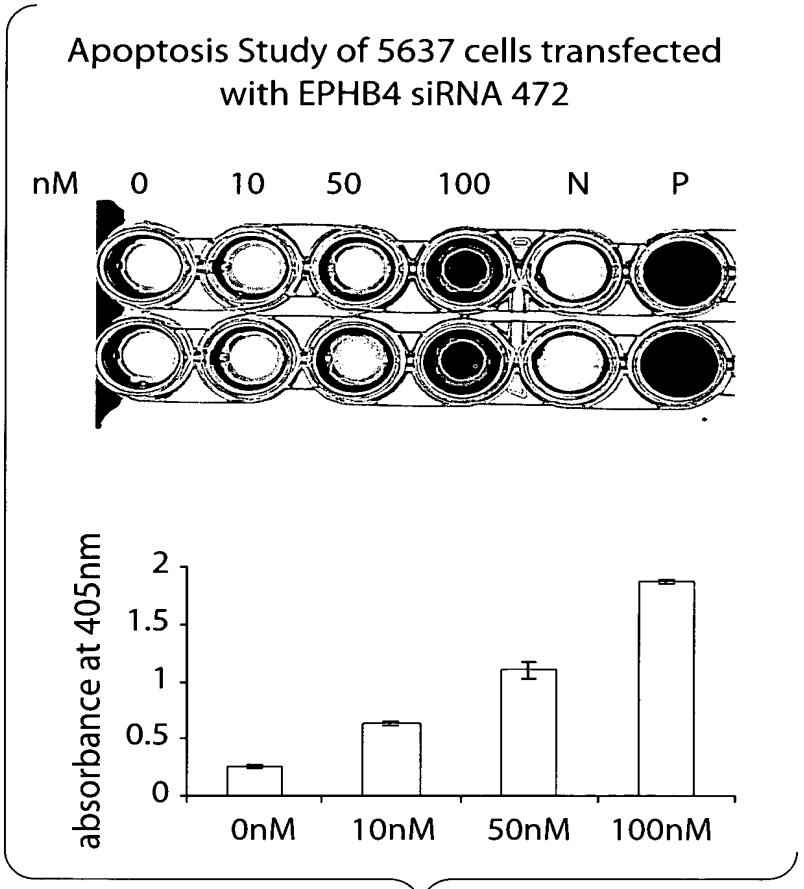

Apoptosis Study of 5637 cells transfected with EPHB4 siRNA 472
nM
0
10
50
100
N
P
absorbance at 405nm
2
1.5
1
0.5
0
0nM
10nM
50nM
100nM

Fig. 54

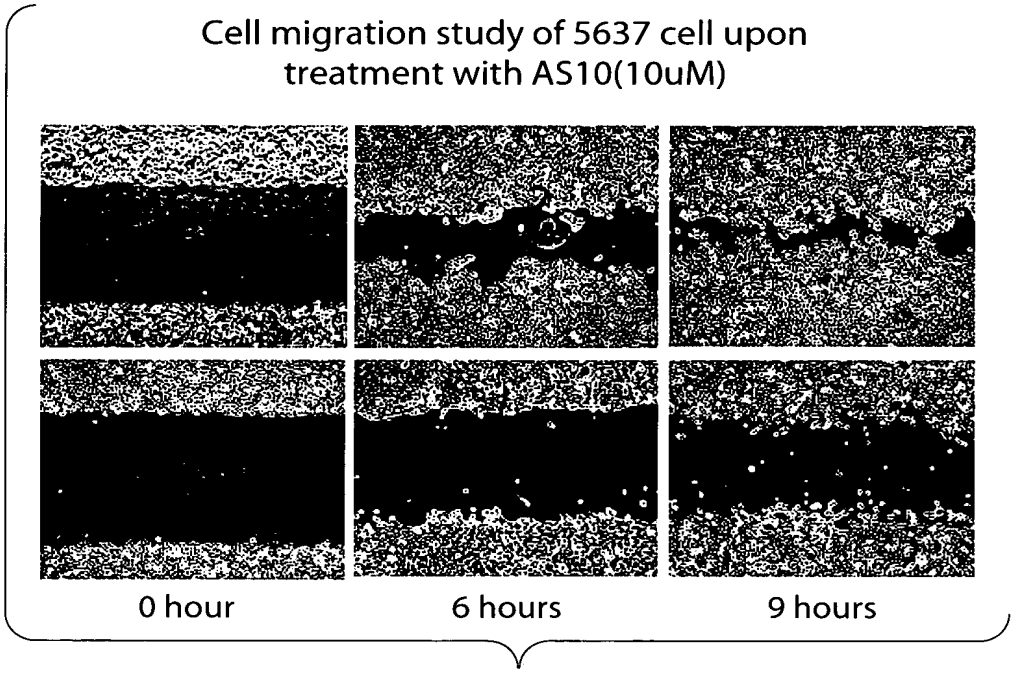
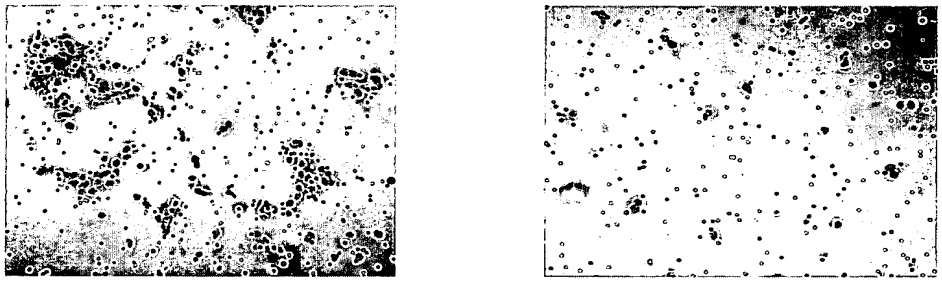

Cell migration study of 5637 cell upon treatment with AS10(10uM)
0 hour
6 hours
9 hours

Fig. 55

Invasion study of 5637 cell transfected
with siRNA 472 or control siRNA



Control siRNA472

Fig. 56

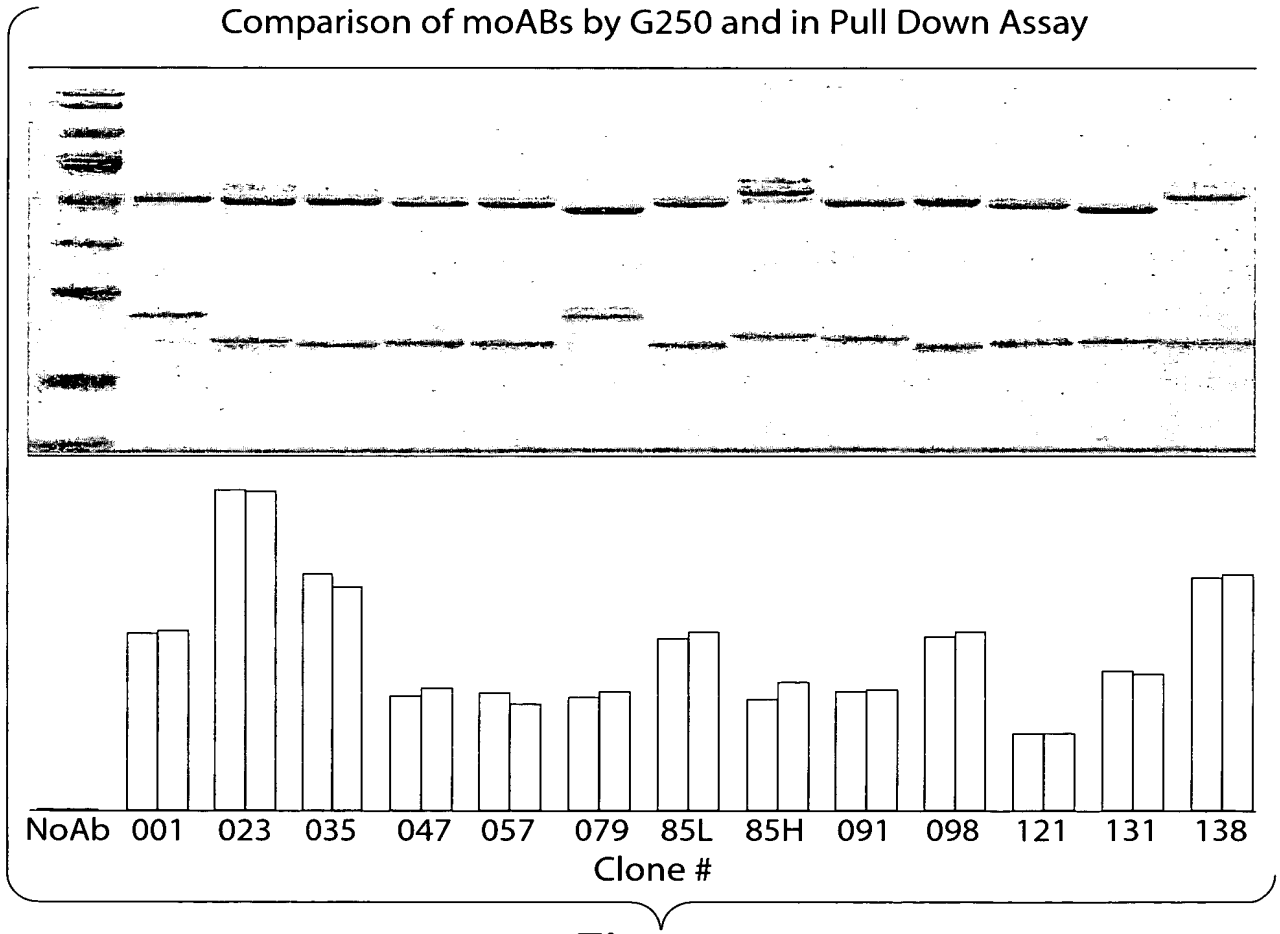

Comparison of moABs by G250 and in Pull Down Assay
NoAb
001
023
035
047
057
079
85L
85H
091
098
121
131
138
Clone #

Fig. 57

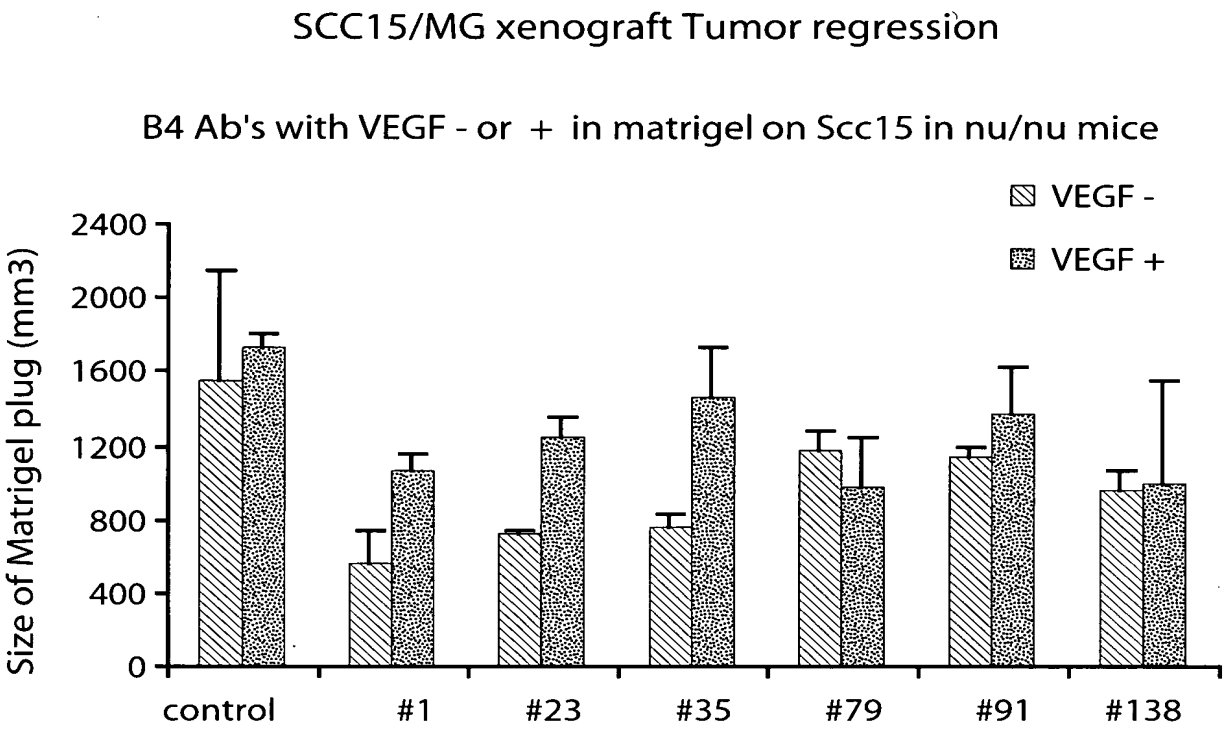

SCC15/MG xenograft Tumor regression
B4 Ab's with VEGF - or + in matrigel on Scc15 in nu/nu mice
VEGF -
VEGF +
Size of Matrigel plug (mm3)
2400
2000
1600
1200
800
400
0
control
#1
#23
#35
#79
#91
#138

Fig. 58

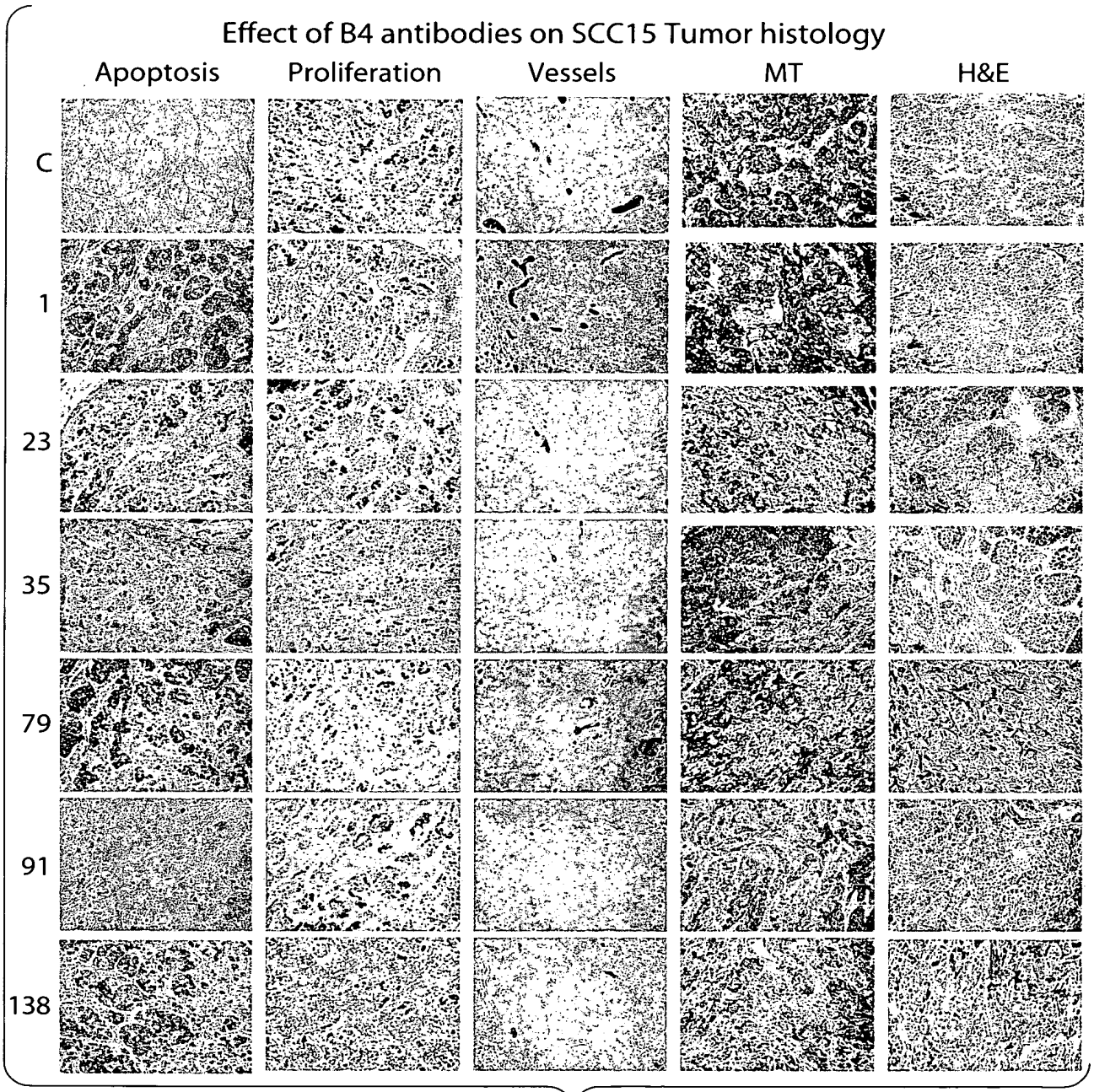

Effect of B4 antibodies on SCC15 Tumor histology
Apoptosis
Proliferation
Vessels
MT
H&E
C
1
23
35
79
91
138

Fig. 59

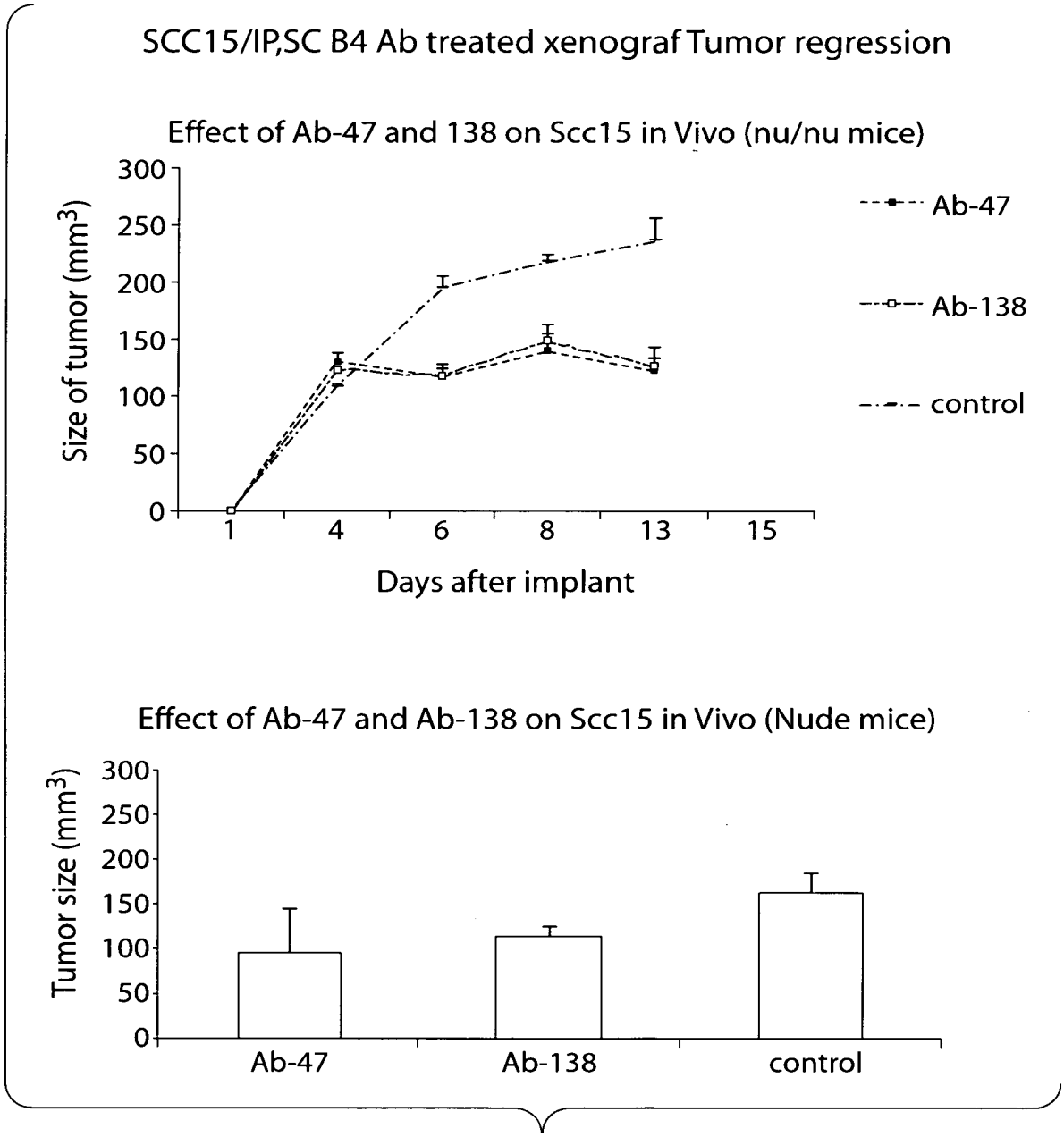

SCC15/IP,SC B4 Ab treated xenograf Tumor regression
Effect of Ab-47 and 138 on Scc15 in Vivo (nu/nu mice)
Size of tumor (mm3)
300
250
200
150
100
50
0
1
4
6
8
13
15
Days after implant
Ab-47
Ab-138
control
Effect of Ab-47 and Ab-138 on Scc15 in Vivo (Nude mice)
Tumor size (mm3)
300
250
200
150
100
50
0
Ab-47
Ab-138
control

Fig. 60

EphB4 gene

```
   1 ggggtttcat catgttggcc aggctggtct tgaactcctg acctcaaatg atccgcctgc
  61 ctctgcctcc caaaatgctg ggactacagg cgtgagccac cgcgcccgcc acacccacct
 121 tttctttacc gttgtttcct cgatttttct ctactcccta gcgcagctta gtgcgcgcct
 181 cctctggaca tttttcaggg cttggttgcg cgcacagtag gtccccaaca ctgaatgttt
 241 atggggtgac tgtgtgaacg ttcgctgcaa ggctatccaa actgggattg ctccttgagg
 301 ccccctgggc ggccgtcaat tctccaaagc ttctactccc ttttccttcc ttttccccca
 361 aaacgcagtc cctgcgccca ctagagggtg gtgggcgcat ccaagagcgg catctagagt
 421 ccgcagcaag gtcagagcgg gctttgtgtg cgcggtgaac atttacgtgc acgcctgggc
 481 ggccctccgt gttgctgctg ggtgtgtgtt ttctctgctc cctggtgcca gccgggttcg
 541 ggcctgtccc gggggtccct gggccccagc cccgacatgc tcggtcctgg acagcgcgca
 601 ccgccacggc gcacatctgg gcggtcccgg ggttcctcac ccgccgcccc tccccttct
 661 ccaaactttc tctcaacttc ccgacctgct ccactcggtg cccctctccg cttccctcat
 721 gaattattca gtagcgtgag ctccaatcag cgcgcccggg gctcactcgc ggagcccccg
 781 cgttgggaga gctgcccccg ccccccgcgc gcccctccct cccgggcccg gcgccgcccg
 841 gcccagttcc agcgcagctc agcccctgcc cggcccggcc cgcccggctc cgcgccgcag
 901 tctccctccc tcccgctccg tccccgctcg ggctcccacc atccccgccc gcgaggagag
 961 cactcggccc ggcggcgcga gcagagccac tccagggagg gggggagacc gcgagcggcc
1021 ggctcagccc ccgccacccg gggcgggacc ccgaggcccc ggagggaccc caactccagc
1081 cacgtcttgc tgcgcgcccg cccggcgcgg ccactgccag cacgctccgg gcccgccgcc
1141 cgcgcgcgcg gcacagacgc ggggccacac ttggcgccgc cgcccggtgc cccgcacgct
1201 cgcatgggcc cgcgctgagg gccccgacga ggagtcccgc gcggagtatc ggcgtccacc
1261 cgcccaggga gagtcagacc tgggggggcg agggcccccc aaactcagtt cggatcctac
1321 ccgagtgagg cggcgccatg gagctccggg tgctgctctg ctgggcttcg ttggccgcag
1381 ctttggaagg tgagtttcct tgcgggggggg ggcgcacccc gtcactcctg ggacctcccc
1441 cccaacatct gggcctcgga gtggaggggc cggcctctga ctacccctac ccgggcactg
1501 cagtcccaaa cacttcggac cgatagtgct ggaacgggag gggggcgggg aagaggcgcc
1561 cgacgggtag tggagttttc ttttgtttgg gaaagagatg gagtctggct acgacccggg
1621 acattcccct gcccgggctc cccgaactct cactgctgat tacatacgcc cctggctgcc
1681 tttcctttcc tccctacccc actattcaaa actatctgca aagtttctgt cccagtccca
1741 cctcccgccg tacatgaggg aaggtttctg gagaagcaac agcagacaag gcacaacttt
1801 tcgtgctagg ccctaaaacg acccccagcg ccaattcctt agcgatcaca ccttgatcct
1861 ccagttccac actcctgcaa caggatggcc tcctttgcat tcacacagca aacccccaaa
1921 ccgctctccc gcccactgct cctgcccctg gtatagggtg gctccttggt ttctacaggc
1981 tgcaccccat ccctttaaat gcggtctaga ccccggcccc aggtgagtcc cgggcttccc
2041 ttgagaccta ggagcgggta gaaactgacc tacacagccc ccaggtagaa actgacctac
2101 acagccccca catcgcccta actaacccag tctatctccc acctcctggt ctctccaagc
2161 atttctttgg ccatggatcg ctgtccctcc tggtccccta aaggggagc caagagccct
2221 agaaactctc ctgtgtccct aatgtccttt cagtgagctg ccaacacccc cctttctctg
2281 tctggtatga aagtggttat ggggcggtag gctatgaggg actcccaaag ggaaggattc
2341 agcggcgtta gaaaaaccct ctccccctgg ctgggcagga ctgccctggg ctggggatca
2401 aaggctaggt gtggggttgg gagtgagggg aggcttgccc agctcagaga acggagaagg
2461 gggaacaaaa accatgaacg aggggaagag gaaggccaaa ggggtggaaa aaccacgagg
2521 acgaggtgtg gtgagaagga aagacgcaaa gaggaaatgg tgattgtgac acctattacc
2581 tgagtgtttc caagcaccag gcctgtgctg agcgccttac aaatattaat ttcacccatc
```

Fig. 61A

```
2641 cagcaacgct aagggtggtg ctattattgc ccccattttt cagatgagga ggctggggct
2701 tagttaaggt taagtagttt atccaaggcc ctgtgccgcg aggaacagcg agaagtggag
2761 gccgaaagcg aaggagagat agtgactgtc agaaagagaa acggaggtgg acagagagtg
2821 gaggagagat aggtgagaga catgcgaact gacagatcaa agcgtggctg cagctgagct
2881 gggacgcaga aagggagcct gcgcttgctc tgggctgcgg acagcccgag gcagagacag
2941 tgtgtaaatt ggagacagga aaacactatc ccggctggaa caatggaggg tggagacggc
3001 agcctctatc cacccccttc ccagaacccg ggcatcctgt ccccagtgag cagggctgtc
3061 tcttgccacc catggggacc ttgcgcctct cacctcaggc tggctggctt cccatctgac
3121 ccctagctgg aggacatcat ttggtcccca ggaagaggct gcctcaccca ccctctttct
3181 cttctctcct gcagctccca tggggtggga gccaggtgtt ctggctcccc tctccaccct
3241 tcccagcgcc caatgccccc cacattgccg gcccccgagg ggattcctgt accctccctc
3301 ctccactctc cactgccagg ggctgtgcag tttttcctaa tccccccccc tcctccagtg
3361 cctgtcccct cccccgatga tccgagccaa gccaggtgtg ttcacccctc ccattcatac
3421 cgccccccag aatctcctcc cctctgcctt cccataacca aatccagatg tgaggcctcg
3481 gcgggagcct gggaacccta gcatcccgac ctccagtgct tcctgatcag ggcactcgtg
3541 gggagggagg tactgggatg ggggccaggg ctatgcccca ggcacggagc gctcccttca
3601 aggagggaag gacggggtgt ttggtctgaa agcagagagg ggtcttggac agggaatgaa
3661 attgtggggt agagaggctg attctgggac ttaggggagg aaacgtggag gctgagacaa
3721 gaggttcccc tcccacacca gcagcctctg ctcgtggggg tcaggaccag ggcgcagctc
3781 tcattttaac cctttctgag ctgccgcccc ttctccccgt acattttgat ctccctccct
3841 cctccaggga ggcctagatc tggggtatcc caagggagcc ccatgcctac cagatgttgg
3901 gggtggggtt ggcacttagc agaagaggcc agaaatcagg cgggtgcaga gggcagggct
3961 tgctcccctc ttggcccccc aactcctcta gctcagagct aagaggatcc acctgcctcg
4021 gttcccaggg atctggtctt cctgacctcc ctcccccacc ccaggcactg actctgtctc
4081 tctgtctgtc tcagagaccc tgctgaacac aaaattggaa actgctgatc tgaagtgggt
4141 gacattccct caggtggacg ggcaggtgag agctgcaccc aggagctgga gctctggagg
4201 gaaactgagg gaggagaggg cgcctgtgcc gcctgctttc tgtgtgccac tcctctcccc
4261 tgtcccccca gatgacagca gccccagcag tgtcgtctga gcccttctca gaggcgccct
4321 cctcgcagta ccagcagccc ccctttctca gtccctctca ctttatagga ttcaccccat
4381 gcagccctct ccctggcggc tccccagccc ccttgctgac ctccttctct gcacagtggg
4441 aggaactgag cggcctggat gaggaacagc acagcgtgcg cacctacgaa gtgtgtgacg
4501 tgcagcgtgc cccgggccag gcccactggc ttcgcacagg ttgggtccca cggcggggcg
4561 ccgtccacgt gtacgccacg ctgcgcttca ccatgctcga gtgcctgtcc ctgcctcggg
4621 ctgggcgctc ctgcaaggag accttcaccg tcttctacta tgagagcgat gcggacacgg
4681 ccacggccct cacgccagcc tggatggaga acccctacat caaggtacct gggtgccccc
4741 agggctcagc cacagccaag gtgggattcc agccagcagg cccgtggcct ggagggcagc
4801 cgatgtagtt gcgaggcctc tggcccgcgc gctgggggct ggaagcagga ggcttaggtc
4861 tggggaggga agggggtgat cttctgggcg gaggagcaga atatacgggg gctgcctggc
4921 ccggccccca gggaggccca agggtcaggc ttctcctcca gtcacctcaa ccaccctacc
4981 ccactgtgct ccagccacac tgagtttctc ccattccctg actgcacctg gctggtttcc
5041 agctcaagac tttgcagcgg tgatgtctcc acctgggggc ctctctgcct ctcacacccc
5101 tacttgtctt cggagttcca gctcccgaga tcttgcctgt gccaccttgg ctgactctct
5161 cctccctaca atcctgcata cctctgtcca cctgcctgtc tcggcactca ttttacttta
5221 tttatttttc ttttatatct atatttttaa agcggggtct tctacgttac ccaggctggt
```

Fig. 61B

```
5281 ctctaactcc tgggctcaag agatttctcc cacctcggcc tcctaaagtg ctgggattat
5341 aggcatgagg cactacgccc ggcctcatgg tactttataa cttccccagg attcattcat
5401 cgctgtctcc ttgactctga ggtcaaggcc tggcatggcg tcagtgtcag taaatgtttg
5461 tagaacgagt gaataaaaag ggggagaggt gcaggccaga ggccgggcat atcgcaggag
5521 ctttgcaagg ctgaatggac agtgtggggg cctgcagaaa gtgtgccctg gggaaggtgg
5581 agggaagatt ctggaacggg aaccaaggag gtccgggagg gtgagctggg aagaacacaa
5641 cagtccgctg ggtcctcagg gagtggggac agcagcggtg tgcctccccc ccgccggcag
5701 gtggacacgg tggccgcgga gcatctcacc cggaagcgcc ctggggccga ggccaccggg
5761 aaggtgaatg tcaagacgct gcgtctggga ccgctcagca aggctggctt ctacctggcc
5821 ttccaggacc agggtgcctg catggccctg ctatccctgc acctcttcta caaaaagtgc
5881 gcccagctga ctgtgaacct gactcgattc ccggagactg tgcctcggga gctggttgtg
5941 cccgtggccg gtagctgcgt ggtggatgcc gtccccgccc ctggccccag ccccagcctc
6001 tactgccgtg aggatggcca gtgggccgaa cagccggtca cgggctgcag ctgtgctccg
6061 gggttcgagg cagctgaggg gaacaccaag tgccgaggtg agagctggag cttcccctgc
6121 gactgctgct catccggggg agagtcctga actccactca ggacccactt cttaagtttc
6181 cattttgtat agttagatgt tgaaatggag gcttgctctg tcacccaggc tggagtgcag
6241 tggcacaatc tctgctcaac tgcaaccttt gcctcccggg tccctgttca agcagttctc
6301 ctgcctcagc ctcgtgagta gctgggacta caggcacacg ccaccacgcc cggctaattt
6361 ttgtatttta gtagagacgg ggtttcgcca tgttggccag gctggtctcg aactcctgac
6421 ctgaagtgat ttgcccgcct cggcctccca aagtgctggg attacaggcg tgcgtcacca
6481 cacccagctg gaaaaaaaaa agactttatt ttcacctgaa attcattaat ttccacttga
6541 aattccacct gcagttgtag caggacctga cacttgggcc ccatggaaat cacaggtatt
6601 gcctgacaca gtggttcatg cccatagtgc cagcactttg agatgccaag gtgggaggat
6661 cacttgagcc caggagttcg agatcagcct gggtgacaga gcaagacccc gtctctaaaa
6721 aaaatttttt ttttttttc aagacagagt cttgctctgt cgcccaggct ggagtgcagt
6781 ggtgcgatct cggctcactg caagctccgc ctcccaagtt aacaccattc tcctgcctca
6841 gcctcccgag tagctgggac tacaggcccc gccaccacgc ccggctaatt tcttgtattt
6901 ttagtagaga tggagtttca ccgtgttagc caggatggtc tcgatctcct gacctcatga
6961 tctgcccgcc ttggcctccc aaagtgctgg gattacaggt gtgagccacc acacccggat
7021 tacaaaaact ttttagataa ttatctgggc gacctgcctg accaacatgg agaaaccctg
7081 tctctactaa aaatacaaaa ttagccggac atggtggcgc atgcctgtaa tcccagctac
7141 ttgggaggct gaggcaggag aatcatttga acccaggaag cagaggttgc ggtaagccga
7201 gatcatgcca ctgcactccg gtctgggagt gcactccaac aagaaggagt ttcgctcttt
7261 ttgcccaggc tggagtgcag tggtgggatc tcagctcacc gcaacctcca cctcccgggt
7321 tcaggcgatt ctcctgcctc agcctcccaa ggagtagctg ggattatagg tatgcatcgt
7381 cacacccggc tacttttgta tttttagtag aggcaggttt ccaccatgtt ggccaggctg
7441 gtcttgaact caagtgatct gccctctttg gcctccttct caggaaaaaa aaaaaatcac
7501 aggtatttac aggccattcc aagtgccaaa agattgtttt tgctcatggt gacttcagta
7561 tcacagatgt taggagactt gctgctatat gttaagaaag aagcacaaat gttgctgtag
7621 cccaaacttt tttcctcatg tttcattgca tttcagctta attggtttcc ctggtattcc
7681 tatgtatttt gtggagtgct tttaaaatca taagttggag tagaggtctt tctgtgggct
7741 tcaccagact gccgagatca gggtcgaaac aggtgaggac cccttctctg gagagagtct
7801 cctttctcct ctaagaggaa aggttttgag atcttttgtc cattttccca ccttagcact
7861 tcatcagcct taaaagaagc tggaattttt ttttttttt ttggagatgg gatctcgata
```

Fig. 61C

```
7921  tgttgcccag gctggtcttg aacccttgg ctcaagcgat cctccagcct cagcctccca
7981  aagtgctggg attcgaggca tgagccaccg agcccaccgt gcagatggat gtttttgtgc
8041  atgcttttga tgaatgcttt ctctctctca gcctgtgccc agggcacctt caagcccctg
8101  tcaggagaag ggtcctgcca gccatgccca gccaatagcc actctaacac cattggatca
8161  gccgtctgcc agtgccgcgt cgggtacttc cgggcacgca cagacccccg gggtgcaccc
8221  tgcaccagta agtgaccagc acccaggtgc agttcactgg ggaggggtca cagacctctg
8281  aggtggaccc tcacatggcc cccatcctcc ctgggcttct tccctttgtc cctggcatgc
8341  ttgtccctag cccggaggaa catgtggagc ccactgtctc caaggcaaga gtccagcatg
8401  gctgctggtg cctccattgc cctctcccca ccaccgcaga gcaggtcggc ctctgcctga
8461  ctccctggtc tcctgcagcc cctccttcgg ctccgcggag cgtggtttcc cgcctgaacg
8521  gctcctccct gcacctggaa tggagtgccc ccctggagtc tggtggccga gaggacctca
8581  cctacgccct ccgctgccgg gagtgccgac ccggaggctc ctgtgcgccc tgcgggggag
8641  acctgacttt tgaccccggc ccccgggacc tggtggagcc ctgggtggtg gttcgagggc
8701  tacgtcctga cttcacctat acctttgagg tcactgcatt gaacggggta tcctccttag
8761  ccacggggcc cgtcccattt gagcctgtca atgtcaccac tgaccgagag ggtgagactt
8821  gggggctggg gcggctggtg gtctggcggg agagatgtca ctgagggcct gaaggggaga
8881  ggcaggggct gtgaagttgg gtaccccgga agtgtgaggg gctaaggctt tgggggcaag
8941  aggcagaaag agggcaatgg ctgggcgcag tggctcacgc ctgtaatccc agcactttca
9001  gaggctgaga caggcggatc acttgagccc tggagttcaa gaccagcctg ggtaacatag
9061  gaagatctct ctacaaaaaa taaaaatatt agccaggcga ggtggtgcat gcctgtggtc
9121  ccagctactc aagaggctga ggcaggagga ttgcttgagc ccaggagtcg gaggctgcag
9181  tgagctatga tcgcaccgct gcatgccagc ctgggtgaca gagcagtgtg agatcctctc
9241  tcaaaataaa tgaataagaa agagagggtg aggagctcgt aaagctgggc tggagagtta
9301  agtacaggaa ggcccccagt gggactgggg ccagagagaa tcagaaggaa ttctcgaaac
9361  agccaggggg aaattgagac aagtgtagcc agcagaggaa gtgttggaaa agataaggga
9421  catggccagg ctgatcacaa ggtcaggagt tcaagactag cctggccaac gtggtgaaac
9481  cccatgtcta ctaaaaataa aaaaattagc caggcatggt ggtgggcacc tgtaatccac
9541  ttgggaagca accagaagaa ttgcttgaac ccaggaggcg gaggttgcag taagctgaga
9601  ctgcgccact gcactccagc ctgggtgata gagcacgact ccgtctcgaa aaaaaaaatt
9661  ttttttaagt taagggacag agctaccatg cacaagggtt ccctgtgtct ctgcctctca
9721  cagtacctcc tgcagtgtct gacatccggg tgacgcggtc ctcacccagc agcttgagcc
9781  tggcctgggc tgttccccgg gcacccagtg gggctgtgct ggactacgag gtcaaatacc
9841  atgagaaggt aaggccatcc cccagccctg gggtgggtgg gcaatgggtt gtgctctcct
9901  ggctgggaca cctgggttgc aggcacctgg caggcatttg aattccagct ctgccatgga
9961  ttccctgggc agccttgggt aagccccttg gcctgtctga gcctcagact cttcatctat
10021 aaaatagtta ctgtaatagt taccagcagc tggacacagt ggctgaggtt gggtgcggtg
10081 gctcacgcct gtaataccaa gcactttggg aggctgaggc gggcagaatg cttgagccta
10141 ggagtttgag accagcctgg gcaacatggt gaaacttcat ctctataaaa aacttaaaat
10201 gggccgggcg cggtagctta cgcctgtaat cccagcactt tgggaggccg aggtgggcgg
10261 atcacaaggt caggagtatc gagaccatcc tggctaacac ggtgaaaccc catctctact
10321 aaaaatacaa aaaattagcc aggcgcggtg gcaggcgcct gtagtcccag ctactcggga
10381 ggctgaggca ggagaatggc gtgaacccag gaggcggagc ttgcagtgag ccgagatagc
10441 gccactgcag tccggcctgg gcgaaagaac aagactctgt ctccaaaaaa aaaaaaaaaa
10501 aaaaaaaacg caaaaaatac ttaaaatgaa aaaaattaga ctgggcacag tggctcatgc
```

Fig. 61D

10561 ctgtaatccc ggcactttgg gaggccgagg tgggtagaac acctggggtg aagagttcga
10621 gaccagcctg gccaacaagg tgaaatcccc gtctctacta caaatagcaa aatcagctga
10681 gtgtgttggc gggcccctgt aatcccagct actcaggagg ctgagacagg agaatcactg
10741 gaacccaagt gattctcgac ttgaggtcga ggctgcagtg agtcgtgttt gcaccattgc
10801 attccagcct gagaaagtga gaccttgtct taaaaaaaag gaatgatatt atgaatacag
10861 cacatggctt gcatgcgtaa gttctcccaa aggcctcacc agttgcaagg caggctagtg
10921 atgggagtgg agggcgaggg aaggaggcag gaagagcaac aggaacttgg gttcccgggt
10981 gacggccacc ccactacctc tcccggacag ggcgccgagg gtcccagcag cgtgcggttc
11041 ctgaagacgt cagaaaaccg ggcagagctg cgggggctga agcggggagc cagctacctg
11101 gtgcaggtac gggcgcgctc tgaggccggc tacgggccct tcggccagga acatcacagc
11161 cagacccaac tggatggtga gcctggggaa gggggtgagg gtgggggttg gaaagacccc
11221 caaagttcct gggaagaccc caggtctcca aagtcccatc atctttttt ttttttttt
11281 tttttgagat ggagtcttgc tctgtccctc aggctggagt gcagtggcac catctccgct
11341 cactgcaacc tccgcctccc ggattcaagc cattctcctg cctcagcctc ccgagtagct
11401 gggattacag gcgcctgcca ccgcgcctgg ccgatttttt gtatttttag tagagacggg
11461 gcttcaccgc gttggccagg ctggtctcga actcctgacc ttgtgattcg cccgcctcgg
11521 cctcccgaag tgctgggatt acaggcatga gccactgcac ccggtcaaag tcctatcttc
11581 atgtccttct tcctgtggat cacatggcat gccctagaga ggagagaacg taagatgtcg
11641 aaaccaaaac caacagctga gttttgtgaa gtctggcctg cttcactctg tacccccagg
11701 ctggagcgca gttgctcgat caaagctcac tgcacagcca ggcacagtgg ctcaccctgt
11761 aaccccagca ctttgggagg ctgaagcagg aggatcactt gaggtcagga gttcgagacc
11821 agtctgacca gcatggtgaa accgcgtctc tactaaaaat atagaagtta gctgagcgtg
11881 gtggtgcaca cctgtaatcc cagctactcg ggaggctgag gcaggagaat cgcttgaacc
11941 tgggaggtgg aggttgcagt gagctgagat tgtgccagtg cactccagcc tgggcaacag
12001 agcaagactc tgtctcaaaa aaaaaaaagc tcaccgcagg cttgactttt agcaacaacc
12061 tgacccctga gctccccatt ccccatccaa caaaatggga atatcatgaa gcttcctgca
12121 gggctttgag gattggaggt aacaggttat ttttaatatg ctaggccagt ggctttcttt
12181 tttctttcac attttttttt ttgagacgga gtctcactct gttgcccagg ctggagtgcg
12241 gtggcgcgat ctcagctcac cgcaagctcc acctcctggt ctcgatctgc tgacctcctg
12301 atccacccgc ctcggcttcc cgaaatgctg ggactgctgg cgtgagccac cacgcccggc
12361 ctaacttttt cttttttta agagacacgg tctttttat cacccaggct ggagtgcggt
12421 ggcaccatca tagctcattg cagcctacaa ctcccgagct caaccaatcc ttccacctta
12481 gcctcccaag tagctggggc tataggcatg tgctaccgtg ctcaactaaa tttttttta
12541 tgttttgttg agacagtttc cctatgttgc ccaggctggt ctcaaattcc tgacctcgag
12601 caatcctccc gcatcggcct cccaaagtgc tgggattaca ggcatgagcc gccacaccca
12661 gcattggacc agtggctttc taaaccttgt aattttctgt aatagcttta ctgaaataca
12721 gttcccctgc catacaattt gcctgttcaa agtgtacaat cgatgacttt tgatacattc
12781 acagaattgt gcagtcacca ccacaagtaa ttttgggaca ttttcagcac cctcaaaaga
12841 gaccctatag cccttagcca tcacccccca cccagatctt tctgttgcct tagtccctgg
12901 caagcactaa cccactttct gtcttgaaat cttccagtgt ggtcttttgt gactgttcac
12961 cgagcagaat gttttcaagg tttatgtatg ttgtagtata tatccgtggg ttttttggt
13021 tgtggtttgt tttttgtttg ttttggaaac agggtctcgc tctgtcaccc aggctggagt
13081 gcagtggttc aattacagct cactgcagcc tcaacctccc aggctcaagt gatcctccca
13141 cctcagcctc ccaagcagct gggactgtag gcatgagcca ccatgcccag ctaatttttt

Fig. 61E

13201 ttggtatttt ttgtaaagac agggtttcac catgtttccc aggctggtct cgaactcctg
13261 agctcaggca atccacccac ctcagcctcc caaagtgctg tgattacagg catgagccac
13321 tggacctggc ctgtttttg tttttgtttt gaacacacga ttttgctttg tcacccaggc
13381 tggaatgtaa tggtctgatc atagtgcatt gcagcctcaa actcctgggc tcaagcgatc
13441 ctcctacctc agcctcctga gtatctggga ccacacgtgc tcaccaccat gcttggctaa
13501 ttattattat tttttgatag agacggggtc ttgctatgtt tcccaggctg gtcttgaaca
13561 cctggcctca cacaatcctc ccacctcagt atctcagagt gctgggatta caggcatgag
13621 ccactgctcc tggccaatat ttcatttctt tttatggaga cgtaataatc agttgtatgg
13681 aaatagctga ttttgttttt tattgtatct tttggtgaac atttcaattg tatcgacttt
13741 ttggataaaa acctgaaaat gtttcacctt tagaacgttt cattgaatgg agatttttt
13801 gtggactctg gtatttatac tagaaccaaa tcaaaaccac tctggcggct gggcatgcct
13861 aggctggttt gagactagcc tgtccaacct ggtgaaagcc catctctact aaaaatacac
13921 aaattagccg agcatggtgg tacacacctg taatcccagc tactcaggag gctgaggcag
13981 gagaatcgca gaacccggga ggcggagatt gcagtgagct gagattgcgc cactgcactc
14041 cagcctgggc gacagagtga gactgcgtct caaaaaaaca aacaaaaaat tactctggca
14101 gtaagaaaag atttcgaaac ttcctccctt gccctgaggt acttcagagg agcctgctgg
14161 cccctggggg agagtttgaa acccactgtt tgttccctga ccttgcctgc ttgtgtcctc
14221 tccctccacc tgtcccctgt actggggacc tgttctcagg agatcacagt tcattgctca
14281 aagccggggc tggggcctcc tacaggacca tcagtttctc ctgatcagca gcctttcctt
14341 ccgcagagag cgagggctgg cgggagcagc tggccctgat tgcgggcacg gcagtcgtgg
14401 gtgtggtcct ggtcctggtg gtcattgtgg tcgcagttct ctgcctcagg taagggctct
14461 gacacccaga ggcccctgga agccctcagt tgatggccac ctgcctgggt gctacaggac
14521 aagcctttct ggctgtcccc agcctctttt tacttgaaat cttctccaat ccctgctcct
14581 tcctttggtg tgtgtgcctc ataaagatgt gtgactcagt ttacctttg ttcctttccc
14641 atcggctaca ggaagcagag caatgggaga gaagcagaat attcggacaa acacggacag
14701 tatctcatcg gacatggtgg gttgccctaa tttgatggga ataggggctt ggggccgggt
14761 gtggtggctc ctatctataa tcccagcact ttgggaggca gaggtgggca gatcacttga
14821 ggtcaggagt tcgagaccag cctggccaac atgttgaaac tccatctcta taaaaaatac
14881 atcagtcagc caggcatggt ggtgggcacc tgtaatccca gctactcagg aggctgaggc
14941 agaagaatca ttttaacccg ggaggcggag attgcagtga gccaagatcg cgccactgcg
15001 ctccaggcct gggtgacaga gcgagactcc atctcaggaa aaaaaaaaaa aaaaaaaaaa
15061 accacggaga caggggtttg gggctaaaag ctatgagccg agcctccgag tccagtggga
15121 gttaattccc agctgacggg gccctgcctg atttctcagg tactaaggtc tacatcgacc
15181 ccttcactta tgaagaccct aatgaggctg tgagggaatt tgcaaaagag atcgatgtct
15241 cctacgtcaa gattgaagag gtgattggtg caggtgagag ccgaaggctg cccgggcacc
15301 tgggaacgaa gcgggggtgg gcagggccac actggagcgg gagagctgat gacctctgcg
15361 tccttgtttg aaggtgagtt tggcgaggtg tgccgggggc ggctcaaggc cccagggaag
15421 aaggagagct gtgtggcaat caagaccctg aagggtggct acacggagcg gcagcggcgt
15481 gagtttctga gcgaggcctc catcatgggc cagttcgagc accccaatat catccgcctg
15541 gagggcgtgg tcaccaacag catgcccgtc atgattctca cagagttcat ggagaacggc
15601 gccctggact ccttcctgcg ggtgagcacc ctccctggct tctgcggcca cccggagttc
15661 ccacttacac ccagaggcca cttgggttaa gaagccagga cagacagtgg gtcccaggtc
15721 acctcctcca gccttttcct cttgggctaa gccctggtcc tctgcctttt ctttttttta
15781 agacagagcc tcgctctgtc gcccaggctg gagtgcagtg gcgcgatctc ggctcattgc

Fig. 61F

```
15841 tgtctccacc tccagggttc aagcgattct cctgcctcag tctcccaagt agctggtact
15901 ataggcatgc accaccatgc tgactaattt ttgtattttt agtagacaca gggtttcacc
15961 atgtaggcca ggctggtatc aaactcctga cctcaagtga tctccccacc tcagcctccc
16021 aaagtgctgg tattacaggt gtgaggcacc acgcctggcc agccctctgc ctttaatttt
16081 ccctctggga aaggctgggc tcctgggacc ttcctttccc actgccccat acagctgaag
16141 gttgtcattc cttcttttt tttttaattt tgttttaatt gaatttttt tttttgagat
16201 ggagtttcac tcttgttgcc caggccggag tgcaatggca agatcttggc tcaccgcaac
16261 ctccgcctcc caggttcaag cgattctcct gccttagcct ccccagtagc tgggattata
16321 ggcatgtgcc accacgcttg actaattttg tatttttagt agagacgggg gtttctctgt
16381 gttggtcagg ctggtctcga actcccgacc tcaggtgatc cgcctgcctc ggcctcccaa
16441 agtgctggga ttacagacgt gagccaccgc gcccggccaa ttttttttt ttttttttaa
16501 gacagagtct cactctgtcc tctaggctgg agtgcagtgg tgcattcata gctcactgta
16561 gccttgacct cctgggctca agtgatcctc ccgcctcagc ctcctgagta gctggaacta
16621 cactcatgta ccaccatgct cagcaaattt ttaaaatttt ttgtagagac aggatctcga
16681 taggttgccc aggctggtct gaactcctgg cctcaagcga gcctccctcc tcagcctccc
16741 acagcactgg gattgcaggc atgagccact gtgcctggcc tgtcattcct tcttttgaca
16801 aatatttact gagtgctttc tacgcaccgg tcatcctccc agtccccagg aataaagcta
16861 tacacacggc aaactggatt tctcctcttg gggagcagag ggtctaatgg ggcaggggga
16921 ctgaaaatta gcaagtaaat agacaggctt tttaaaaaag taaacaaatc atttcaaatg
16981 tgaaaaaaag caaacggggt ccttcatgca gatgtggcta gagaggaaag agaactgctt
17041 aatttatttg gtcactttac cagattttac tgacttttt ttttttttta actttattaa
17101 gcttttcttt tttcttgaga tggagtttcc atctgtcacc caggctggag tgcagtggtg
17161 cgttcttggc tcaccgcaac gtccacctcc tgggttcaag tgattctcct gcctcagcct
17221 cctgagtagc ttggaattgc atggcatgca ccaccatacc cagctgatgt ttgtattttt
17281 agtagagaca gggtttcatc atgttgccca ggctggtctt gaactcctgg gctcaagtga
17341 tccacccatc tcggcccctc aaagtgctgg gattacaggc atgagccacc atgcctggcc
17401 taggcatctt tttaaaaaaa tcaaaacatt tttctatgta gcaaaataac attgcattga
17461 acagagttat agcgattccc tagcgtcatt gaatacccag ttgattttca cgtttctcta
17521 gttgttctaa agatgtcctt cactgctgct ttattccaac caggatccag ttcaagaccg
17581 ggctttgtac ctggttatta tatatatttt atttatttat tttagaaaca aggtcttgcc
17641 ctttcgccca gtttagagtg cagtggtgca atcatagctc actgcagcct ccaaactcct
17701 tggctcaggt gatcctcctg cctcagcctc ctgggtagct ggaactacag gtgcacacca
17761 ccacacctgg ctaattttta aatttttac ggagatgggg gtctcgctat gttgcccagg
17821 ctggtctcaa actcctggac tcaagcgatc ctccctcctt aacctctcaa agtgctggga
17881 ttacaggcgt gagccaccac gcctgctgat tattatattt tcgagcctct ctaaatcttg
17941 agcagttcct catgatgaca ctgacacact gaagggttag gtcccttgtc cgcctgaatg
18001 tcttgatttc tggatttatg aaattcttct tatgggatca tttagcttgt ctctctgtat
18061 ttcctgtaag agaagctcta tctgatgtgg ggtttttttg gttttgtttg tttgtttttt
18121 gagatggagt cctgctgtcg cccaggctgg agtgcagtgg cacaatctcg gctcactgca
18181 acctccgcct cctgggttca agagattctt ctgcctcagc ctcctgagta gctgggacta
18241 caggcgagtg ccaccatgcc cagctaattt ttgtattttt agtagagaca gggtttcacc
18301 atattggcca ggatggtctc gaacttctga cctcgtgatc tgcccaccac ctcagcctcc
18361 cacagtgctg ggattacagg catgagccac tatgcccggc taatttttgt atttttagta
```

Fig. 61G

18421 gagacagggc ttcgccatgt tggccaggct gatctgaaac ccctggcctc aagccatcca
18481 ccctccttgg cctcccaaag tgctgggatt aaacgcgtga gccaccgtgc ctggtcgaag
18541 agacagaaag ggtcttaaag gttcagtgac acacacctgt aatcccagca ctttgggaag
18601 ctgaggctgg tggatcactc gaggccagga gttagagatc accctgggca acatggtgaa
18661 accccgtctc tacacaaaat acaaaaatgg gcagagcatg atggtgcata tctgtagtcc
18721 cagctactcg ggaggctgag gcgggaggat cacttaagcc tgggagatcg aggctgtagt
18781 gagccatcat tgcactactg cattccagcc tgggcgatcc catctcttaa aaagagagag
18841 agatgggaag accagcacag gtgaaactgg tgaacagagg agagatggta gatgctgcat
18901 tgggcagtgt gacgggaacc cgctggaggg ctttggcagg agagtagttt aagaggatcc
18961 cagctgggca cagtggctca cacttgtgat cccagcactt ggggaggccg gggcaggtgg
19021 atcacttgag gtcaggagtt cgagaccagc ctggccaaca tggtgaaacc ctgtctgtac
19081 taaaaataca aaaaccagcc aggcatggtg gtgcaccct gtaatcccag ctactcagga
19141 gactaagaca ggagaatcgc ttgaactcag gaggcagagg ttgcagtgag ccaagatcac
19201 gccactttac tccagcctgg gcagtagagc gagactccat ctcaaaaaaa taaataaata
19261 aaaagacctc tttgctgggt gctagggagc aagagcagga gctgggagag gcctgcagca
19321 gaagcctgtt gccagcatcc aggccgtggg gtgaagggaa gggtttggat ttgggacatg
19381 tcttggaagc atcaccagca gaacttgctg atggattgga agtggctggt gagggagaaa
19441 agggggtcaa aggaaactct gaggtctata ccctgaccat ctggcaagtg gtggtgttgc
19501 cacaaactga gcggggagta gggcaggtgc aggtctggag gatggattca aaattcagtt
19561 tttggagtct atgtccctgg ttctgtaggg ctgcagatgg tctgccaaat cttagcggaa
19621 cccagaatac gggatttgtt tactgtctgt gacttgttgg tttccctggt gagagcaaac
19681 tctttaaagg tcaaggttgg gcttcagacc ttggtttttg caccgatcat tggtcatact
19741 gcagttcctc actcttctct tgcaaatcca tacacagcta gtccaagaga gctgaacagc
19801 tttgtggttg gatcagcacc aatgtatctc cacctgtaga cgggttgctc aggtgactca
19861 tgcctgtaat cccagcacct tgggaggcca aggtgggaag attgcttgag gccaggagtt
19921 ggagacaagc ctgggaaaca cagtgagacc ccatatctac caaaaaaacc cctttgtttt
19981 aattagccag gtgcagtggt gtgcacctat agtcccagct actaaggagg ctgaggcaga
20041 aggatcattt gagcccagga gtttaaggct gcggtgaacc atgatcgtgc cactgcactc
20101 caacctgggg gaaagaaaga gaccttgtct ctaaaaaaac taaaaaacag aaaagcattt
20161 gttgagtatt tcctgggtat aaagcagtgt accaggttaa atggaaggaa aagttgaaat
20221 aatttttcaa ctcataatcc gattgggaga gactgaatgc ttaccattga agcaggaacc
20281 attgtaagca atgtgttgtg atactgtagc aagagctgag aaaacttggg aaaagagaaa
20341 ggaggaaggc tcacctgagg gagttggggg gcttgcccta caggtgagtt gtgaggtggg
20401 tctggaagtg acagatgcag tttaggaagt ggacgggagg ctgggtacgg tgactcaaca
20461 tctgtaatcc cagtgctttg ggagacccag gcggaaggat cgcttcaggc caggagttaa
20521 agaccagcct gggcaacata gtgggaacct atctctacta aaaattaaaa aattatccag
20581 gcataatggc acatgcctat tgttccagct actcaggagg cttgcctgag cccaggaggt
20641 tgaggctgca gtgagctatg atggcaccac tgcactccag cctgggcgac agaacaagac
20701 cctgtctcta aaaaaaaaag atgtggatgg gaggggggaac ggtgggtggg ctgtcctcac
20761 caagccccca ccctatctgc tctccagcta aacgacggac agttcacagt catccagctc
20821 gtgggcatgc tgcggggcat cgcctcgggc atgcggtacc ttgccgagat gagctacgtc
20881 caccgagacc tggctgctcg caacatccta gtcaacagca acctcgtctg caaagtgtct
20941 gactttggcc tttcccgatt cctggaggag aactcttccg atcccaccta cacgagctcc
21001 ctggtaatgc tgggggtaat actgggtgtg agcttcttag ggccaggtgg gcagggcagg

Fig. 61H

```
21061 ttggaaaggt gggaggctga gggtttggca gccctgctcc agggagagga tacaggagca
21121 ggctgtgggt gggggacag tcagctccag gaagccgact tccagatgtc taggaaaata
21181 acagttggat aacctgggca acatagcaag accccatctc tacaaaaaaa ttaaaagatt
21241 agccaggcgc agtggcatgc acctgtagtc ccagctactt gggaggttga ggcaggagga
21301 ttgcttaagc ccaggagttg gaggctgcag tgagctatga atgtgccact gtactgcaga
21361 ctgggcgaca gagcaagacc ctgtctcaaa agaacagtgg ccaggtgtgg tggctcacgc
21421 ctgtaaatcc agcactttgg gaggctgagg caggaggatc gcctgaggtc aggagttcga
21481 gaccagcctg gccaacatgg gaaaaccctg tcgctactaa aaatacaaaa ttagctgagg
21541 gtggtggtac acgcctgtaa tccgagctac tcaggaggct gaggtaggag aaccagttga
21601 acccgggagg cggagtttca gtgagccaag atcgcaccac tgcactccaa cctgggcaaa
21661 cagagttgga gagtaggagg cttggggcct gagctagggg gaaaaagcag aggcaggtgg
21721 gggactgggg ggcagtgtgc tgggtctggt gagtccctca gtgagtcccc cagctcacct
21781 tttctccttt ttctgcaggg aggaaagatt cccatccgat ggactgcccc ggaggccatt
21841 gccttccgga agttcacttc cgccagtgat gcctggagtt acgggattgt gatgtgggag
21901 gtgatgtcat ttggggagag gccgtactgg gacatgagca atcaggacgt aagtgtcccg
21961 tggtcctacc aagctttcct cgagtgttct ctcacctggg atttggggtg aagggtgggt
22021 tcccagagag tcatcactgc tgggttcttg agaccatgga gatgacaaaa aggagaattg
22081 atctttgtat caaagagttg agatacaggg ccaggcctag tggctcaagc ctgtaatccc
22141 agcactttgg gaggccaagg tgggcagatc acctaaggtt aggagttcaa gaccagcctg
22201 gccaacatgg tgaaaccccg tctctaaaaa aatacaaaaa attagcccag catgatgggc
22261 gggtgcctgt aatcccagct actcaggagg ctgagacagg ataatcgctt gaacccagga
22321 acagaggttg cagtgagctg agatcacgcc attgctttcc agcctgggca actgagcgag
22381 actctgtctt aataaataaa taaaagagtt gggtacagca tatttgggtc gcagaaggat
22441 gcagagatgg agggcagggt tgagaggtaa catgtctgta tcatagccca agagctgctg
22501 gggccttcag ccacagagag cttcaactcc ggctaggagg attcctggat ctgttatttt
22561 ttgggggggct gtggctccta tcctaccatc ttccaagtca ccatttcctg ggcctgttag
22621 catctttgct tttcctggac agcctcaccc agagcttctt cccctctttc caggtgatca
22681 atgccattga acaggactac cggctgcccc cgcccccaga ctgtcccacc tccctccacc
22741 agctcatgct ggactgttgg cagaaagacc ggaatgcccg gccccgcttc ccccaggtgg
22801 tcagcgccct ggacaagatg atccggaacc ccgccagcct caaaatcgtg gcccgggaga
22861 atggcgggtg aggactgcag agaatgggcc ctccttcccg ctctctgccc ccactccttg
22921 cccagaagtg tccgttcatt ggtgttgggt gggagggcct ctgtccgcct ctgcaaggct
22981 gggttccacc tcctcccccg gacctgggcc tggtactcag cattcctccc catccttgcc
23041 ccctagggcc tcacaccctc tcctggacca gcggcagcct cactactcag cttttggctc
23101 tgtgggcgag tggcttcggg ccatcaaaat gggaagatac gaagaaagtt tcgcagccgc
23161 tggctttggc tccttcgagc tggtcagcca gatctctgct gagtaagcag tggcaggagc
23221 tggagtgggg ctgggagagc ggggcagctg gagtcaggcc cacggggtct ccaggggctt
23281 ttggggtcag cttcgggtgc caatgctgtc ttcttgcact gcgctcatgc catgcctaga
23341 agggccccag aggagcagtc acagccccat ggagctgagg acccaaggac tctttggggc
23401 cagcctgccc gcctcacctc ctcctgccat cacagccctg ggccatcgcg cttccgcctc
23461 tcacttctag ctatctttgt gcatctatct gcattccagg cccggctctc acggtaacaa
23521 tgtgtcaact cgggttctct ttttccaacc ataaaaggag aagattgggc taggttttgg
23581 agatcctctt cagcttttat gtgaaatggt tttatgattc cttgcctccc aaaggctgcg
23641 tatccccact tggcctttgt ctgctactcc ccctttctgc cttcccgttc ctctcccaag
23701 atctcctctc accccaggtt gaataacaga aatagaagga atagaaatct gaaggccggg
23761 catggtggct catgcctgta atgccagcac tttgggaggc cgaggtgggc agatcacttg
```

Fig. 61l

```
23821 aggttaggag ttcgagacca ttgtggacaa cttggtgaaa ccttatgtct actaaaaata
23881 caaaaattag ctgggcatgg tggtgcgtgc ctgtaatacc agctactgag gaggctgagg
23941 caggagaatc gcttgaaccc gggaggtgga ggttgcagtg agccgagatc gcaccactgc
24001 actccagcct ggatgacaga gtgaaattcc atctcaaaaa aaaaaaaaaa aaaaaaaaag
24061 aaatgtgaag gccaggtggt ggctcacgcc tgtaatctca gcactttggg aggctcaggt
24121 ggaccgattg cttgagccca ggagtttgag agcagcctgg ccaaaatagc aaaaccccat
24181 ctctacaaaa caaaaacaaa aaaattagct gggcatggtg gtgcgtgcct gtggtcccag
24241 ctactcagga ggctagagcc agagggtctc aggccagtct gcccctgccc cacggggcct
24301 gggcacatcc ctccctaatt cttcccagcc tctctctgac ccaggggcc tcctctccct
24361 tttttccct tatctcagcc tccagccatc agcaacctcc tcttcctctc cacccagctc
24421 ttcctctccc acttcggcct tttctttctc acactccatt tccctctacg gcaatctgtg
24481 cagcctcttc ccccagtctc attttgcggg cttttctctc ttttctttcc ttccctggca
24541 cccaagccaa aggccctgcc tctggcctcc agccctaccc ccttctgcgg ttgcacagaa
24601 ggatggctgc ccagctctta aaaaaactgc ccgggaactg ttgacatctg ttctccctcc
24661 cccgctggct tttctgattg gcttacaatc ctgaggctag gaccgtctca ggagccaaga
24721 gaggagagcg gccacaggga acctagggtc tcaccaagct ctcctttcct tctgcaggga
24781 cctgctccga atcggagtca ctctggcggg acaccagaag aaaatcttgg ccagtgtcca
24841 gcacatgaag tcccaggcca agccgggaac cccgggtggg acaggaggac cggccccgca
24901 gtactgacct gcaggaactc cccaccccag ggacaccgcc tccccatttt ccggggcaga
24961 gtggggactc acagaggccc ccagccctgt gccccgctgg attgcacttt gagcccgtgg
25021 ggtgaggagt tggcaatttg gagagacagg atttgggggt tctgccataa taggagggga
25081 aaatcacccc ccagccacct cggggaactc cagaccaagg gtgagggcgc ctttccctca
25141 ggactgggtg tgaccagagg aaaaggaagt gcccaacatc tcccagcctc cccaggtgcc
25201 cccctcacct tgatgggtgc gttcccgcag accaaagaga gtgtgactcc cttgccagct
25261 ccagagtggg ggggctgtcc caggggggcaa gaaggggtgt cagggcccag tgacaaaatc
25321 attggggttt gtagtcccaa cttgctgctg tcaccaccaa actcaatcat ttttttccct
25381 tgtaaatgcc cctcccccag ctgctgcctt catattgaag gtttttgagt tttgtttttg
25441 gtcttaattt ttctccccgt tccctttttg tttcttcgtt ttgtttttct accgtccttg
25501 tcataacttt gtgttggagg gaacctgttt cactatggcc tcctttgccc aagttgaaac
25561 aggggcccat catcatgtct gtttccagaa cagtgccttg gtcatcccac atccccggac
25621 cccgcctggg acccccaagc tgtgtcctat gaaggggtgt ggggtgaggt agtgaaaagg
25681 gcggtagttg gtggtggaac ccagaaacgg acgccggtgc ttggaggggt tcttaaatta
25741 tatttaaaaa agtaactttt tgtataaata aaagaaaatg ggacgtgtcc cagctccagg
25801 ggtgatgggg gtgatggact agatttctaa ggagagtggg gctgggtagg gagggctttg
25861 tggctgaccg agaggtgtca gaggtctgga ggctgcaggg ctgtaggggc tggaacttgg
25921 ttatcagccc cagggtatgt ttgaggtggt ggggtggggg ccgagcgaga tgaatcattc
25981 gcagctgctt ctaacgtctc
```

Fig. 61J

EphB4, mRNA

```
   1 ctcggcccgg cggcgcgagc agagccactc cagggagggg gggagaccgc gagcggccgg
  61 ctcagccccc gccacccggg gcgggacccc gaggccccgg agggacccca actccagcca
 121 cgtcttgctg cgcgcccgcc cggcgcggcc actgccagca cgctccgggc ccgccgcccg
 181 cgcgcgcggc acagacgcgg ggccacactt ggcgccgccg cccggtgccc cgcacgctcg
 241 catgggcccg cgctgagggc cccgacgagg agtcccgcgc ggagtatcgg cgtccacccg
 301 cccagggaga gtcagacctg ggggggcgag ggcccccaa actcagttcg gatcctaccc
 361 gagtgaggcg gcgccatgga gctccgggtg ctgctctgct gggcttcgtt ggccgcagct
 421 ttggaagaga ccctgctgaa cacaaaattg gaaactgctg atctgaagtg ggtgacattc
 481 cctcaggtgg acgggcagtg ggaggaactg agcggcctgg atgaggaaca gcacagcgtg
 541 cgcacctacg aagtgtgtga cgtgcagcgt gccccgggcc aggcccactg gcttcgcaca
 601 ggttgggtcc cacggcgggg cgccgtccac gtgtacgcca cgctgcgctt caccatgctc
 661 gagtgcctgt ccctgcctcg ggctgggcgc tcctgcaagg agaccttcac cgtcttctac
 721 tatgagagcg atgcggacac ggccacggcc ctcacgccag cctggatgga gaacccctac
 781 atcaaggtgg acacggtggc cgcggagcat ctcacccgga agcgccctgg ggccgaggcc
 841 accgggaagg tgaatgtcaa gacgctgcgt ctgggaccgc tcagcaaggc tggcttctac
 901 ctggccttcc aggaccaggg tgcctgcatg gccctgctat ccctgcacct cttctacaaa
 961 aagtgcgccc agctgactgt gaacctgact cgattcccgg agactgtgcc tcgggagctg
1021 gttgtgcccg tggccggtag ctgcgtggtg gatgccgtcc ccgcccctgg ccccagcccc
1081 agcctctact gccgtgagga tggccagtgg gccgaacagc cggtcacggg ctgcagctgt
1141 gctccggggt tcgaggcagc tgaggggaac accaagtgcc gagcctgtgc ccagggcacc
1201 ttcaagcccc tgtcaggaga agggtcctgc cagccatgcc cagccaatag ccactctaac
1261 accattggat cagccgtctg ccagtgccgc gtcgggtact tccgggcacg cacagacccc
1321 cggggtgcac cctgcaccac ccctccttcg gctccgcgga gcgtggtttc ccgcctgaac
1381 ggctcctccc tgcacctgga atggagtgcc cccctggagt ctggtggccg agaggacctc
1441 acctacgccc tccgctgccg ggagtgccga cccggaggct cctgtgcgcc ctgcggggga
1501 gacctgactt ttgaccccgg cccccgggac ctggtggagc cctgggtggt ggttcgaggg
1561 ctacgtcctg acttcaccta tacctttgag gtcactgcat tgaacggggt atcctcctta
1621 gccacggggc ccgtcccatt tgagcctgtc aatgtcacca ctgaccgaga ggtacctcct
1681 gcagtgtctg acatccgggt gacgcggtcc tcacccagca gcttgagcct ggcctgggct
1741 gttccccggg cacccagtgg ggctgtgctg gactacgagg tcaaatacca tgagaagggc
1801 gccgagggtc ccagcagcgt gcggttcctg aagacgtcag aaaaccgggc agagctgcgg
1861 gggctgaagc ggggagccag ctacctggtg caggtacggg cgcgctctga ggccggctac
1921 gggcccttcg gccaggaaca tcacagccag acccaactgg atgagagcga gggctggcgg
1981 gagcagctgg ccctgattgc gggcacggca gtcgtgggtg tggtcctggt cctggtggtc
2041 attgtggtcg cagttctctg cctcaggaag cagagcaatg ggagagaagc agaatattcg
2101 gacaaacacg gacagtatct catcggacat ggtactaagg tctacatcga ccccttcact
2161 tatgaagacc ctaatgaggc tgtgagggaa tttgcaaaag agatcgatgt ctcctacgtc
2221 aagattgaag aggtgattgg tgcaggtgag tttggcgagg tgtgccgggg gcggctcaag
2281 gccccaggga agaaggagag ctgtgtggca atcaagaccc tgaagggtgg ctacacggag
2341 cggcagcggc gtgagtttct gagcgaggcc tccatcatgg gccagttcga gcaccccaat
2401 atcatccgcc tggagggcgt ggtcaccaac agcatgcccg tcatgattct cacagagttc
2461 atggagaacg gcgccctgga ctccttcctg cggctaaacg acggacagtt cacagtcatc
2521 cagctcgtgg gcatgctgcg gggcatcgcc tcgggcatgc ggtaccttgc cgagatgagc
2581 tacgtccacc gagacctggc tgctcgcaac atcctagtca acagcaacct cgtctgcaaa
```

Fig. 62A

```
2641 gtgtctgact ttggcctttc ccgattcctg gaggagaact cttccgatcc cacctacacg
2701 agctccctgg gaggaaagat tcccatccga tggactgccc cggaggccat tgccttccgg
2761 aagttcactt ccgccagtga tgcctggagt tacgggattg tgatgtggga ggtgatgtca
2821 tttggggaga ggccgtactg ggacatgagc aatcaggacg tgatcaatgc cattgaacag
2881 gactaccggc tgcccccgcc cccagactgt cccacctccc tccaccagct catgctggac
2941 tgttggcaga aagaccggaa tgcccggccc cgcttccccc aggtggtcag cgccctggac
3001 aagatgatcc ggaaccccgc cagcctcaaa atcgtggccc gggagaatgg cggggcctca
3061 caccctctcc tggaccagcg gcagcctcac tactcagctt ttggctctgt gggcgagtgg
3121 cttcgggcca tcaaaatggg aagatacgaa gaaagtttcg cagccgctgg ctttggctcc
3181 ttcgagctgg tcagccagat ctctgctgag gacctgctcc gaatcggagt cactctggcg
3241 ggacaccaga agaaaatctt ggccagtgtc cagcacatga agtcccaggc caagccggga
3301 accccgggtg ggacaggagg accggccccg cagtactgac ctgcaggaac tccccacccc
3361 agggacaccg cctccccatt ttccggggca gagtggggac tcacagaggc ccccagccct
3421 gtgccccgct ggattgcact ttgagcccgt ggggtgagga gttggcaatt tggagagaca
3481 ggatttgggg gttctgccat aataggaggg gaaaatcacc ccccagccac ctcggggaac
3541 tccagaccaa gggtgagggc gcctttccct caggactggg tgtgaccaga ggaaaaggaa
3601 gtgcccaaca tctcccagcc tccccaggtg ccccccctcac cttgatgggt gcgttcccgc
3661 agaccaaaga gagtgtgact cccttgccag ctccagagtg ggggggctgt cccagggggc
3721 aagaaggggt gtcagggccc agtgacaaaa tcattggggt ttgtagtccc aacttgctgc
3781 tgtcaccacc aaactcaatc attttttttcc cttgtaaatg cccctccccc agctgctgcc
3841 ttcatattga aggtttttga gttttgtttt tggtcttaat ttttctcccc gttccctttt
3901 tgtttcttcg ttttgttttt ctaccgtcct tgtcataact ttgtgttgga gggaacctgt
3961 ttcactatgg cctcctttgc ccaagttgaa acaggggccc atcatcatgt ctgtttccag
4021 aacagtgcct tggtcatccc acatccccgg accccgcctg ggacccccaa gctgtgtcct
4081 atgaaggggt gtggggtgag gtagtgaaaa gggcggtagt tggtggtgga acccagaaac
4141 ggacgccggt gcttggaggg gttcttaaat tatatttaaa aaagtaactt tttgtataaa
4201 taaaagaaaa tgggacgtgt cccagctcca ggggt
```

Fig. 62B

EphrinB2 Gene

```
   1 gcgcctcgga gctgcctgcg ggcgcacgcc gtcttccccg ccagtctgcc ccggaggatt
  61 gggggtccca gcctgcgtcc cgtcagtccc ttcttggccc ggagtgcgcg gagctgggag
 121 tggcttcgcc atggctgtga gaagggactc cgtgtggaag tactgctggg gtgttttgat
 181 ggttttatgc agaactgcga tttccaaatc gatagtttta gagcctatct attggaattc
 241 ctcgaactcc aagtaagtgg cgtccgcgat ccccctatgt ccccgccccg gggtccgccg
 301 cgccgtccgg gcgggaggag gggtcagtcc gcggggcctc ggagcctgtt tctggaacct
 361 cggttccccg tcccccaccc ccaacccccg ccccatttca ctaggtggag actcctcgct
 421 cggctttcca acccgagccc cgctggaacg gacggtctct ccgcctttcc tcccccgaac
 481 gctcccaggc gctaaaagct actatcggct cgggtgtcaa gtccgggaag gtgtccgatg
 541 gcgatacctg accctctcct gttttcgagg acgaaggaca tggccacaat ctaggctggc
 601 cggcacgcgg ggactggtgg gctctggaga gaggcggaga tgctgcattc gcggggagcg
 661 cgggcggcgt ggtccggggc ccgcgggcgg gcgaccgggg tggcaggacg ctggcagcga
 721 agcgcgttct ggagagggga gcctggagtc gctacgctgc ccgcagagcc ctggagccgg
 781 ggcgccttgg caccgcgccg ccagcccgag ggtgcgcggg gagctcgcct gcttcgcagg
 841 agaactcggg cgtcgagccc tttcctccgc gccggggaga cgggccttag gcttctccct
 901 gagggcccgc cgcacctcgg cctcccgctt cgttcataag ccggtagccc cggagtatgc
 961 ggtctcgatg gccgacctga ttgtaatgca cttcctataa aagcttaggg ccctgcccag
1021 tcgacactgc tcctgaagcc ttctccctcg ggaccctggt aggaatggga tccttaggat
1081 cagatttgct cttaccggac tctacagccg ggagcgagcc aggccttgtg gagagtaact
1141 ttcagtttgg gccaccagag tgcattcaga atttagaaaa tcccatccat ccctaaatct
1201 gtgtggtcat aactcgtagt catctgggta ttcagtactg tgtatcccct tatttcgaat
1261 cacagccaaa acatatttta cagaatcttg gaattgtagt ctcgggaaac ttggagaaga
1321 agtatgcaga cattagctgg tttctggaga aaacgtttga gatcagaagc aaaatcaatg
1381 gcctaattga agttgagcaa gttgggcctg gttttaggag aaaagaaatg ggggattgat
1441 ttagaaatca cgtcttaaag gagtgtgtcc attctcttaa aagtgtcaaa tttcaaattc
1501 actaacatgt taaccaagaa tcccttcatg aaaagggcga aaacgtcggt tacaaatcgg
1561 tttaaacaaa tgtttgtatg atgctagaag gcactttcaa caccgctcat acggagaagt
1621 tacttagctc tgcctccttc catgtagtct gctcttgcat ggattatatt tttaatgtaa
1681 attgttgtat ttgctgatga agtactggcg gcggcatctt tgcatcgatg ccggctcggg
1741 aggcgccagg tggtgccgga aggagccggg ctaggacctc gcgcagcagc gggtcccgga
1801 gtccgggaga ggcgggcggg cgggcgaggc ggtcgcgggg agcccgcggc gccgctgccc
1861 gcccggtgcc tccagaggtc actcttccat gcggaatcgc gcagcgccag gcctcgcccc
1921 tcccccaggc cgcctgctcc agccactctg cactttcact gaccggttct ctttgaggct
1981 gtttttttt ttcttatgag gatttaatat ttctgtttaa atctagttga aagcaattcc
2041 gttagcctct tcagcgttta gttcggtgtg tgtatcttta tctttgcgct atattaacta
2101 ttagtttgtg tgtatccggt aggagaatta gaaataccta gttgggagaa aaagaaaagt
2161 agaacaatag ttatttcaac ctaaggttta gacgttaata acttcttttt gtaatgtgtc
2221 gagatggggg gtcctggggg gaggtgacag gtactcacca ctccccccc ccattctgat
2281 gatgaagatg agtctgtctt tccagctatg tccagacctg cgagggccct gcgtttctgg
2341 aagcctgccg tttgcgcggt tgaggttgct gctgctgtct tgtcctccac agcagcattt
2401 cttttaaaat tctcctgata acggcctgcc tggatgactg gataatgtgt gcctggaaaa
2461 ggtctccctt gcagctgaat gctagctcca gagatcagaa agatttcttc ctgtaggagc
2521 cataggaaag agtcctctct aagtttttga gaatgcatac aacccctga tgacaggggg
2581 tcgctttcct tggggaagtt ttatatttat ttccagagga aagtttgaat cggtaaatat
```

Fig. 63A

```
2641 gatgtggcag gaaggtaatc aaatgcattg aagtttcaca tcagttccta tgaactgtgg
2701 aacaattcat ttgtaatgaa gccgccatca gtaattagat ttgtttcatt cagaggtcag
2761 ctttttagc aggtggtcga cacagggagc atgcagcagc tgtttggata cagggtccag
2821 aaaacccttt gtaaattcag cgtctccgta actactttaa tcacattgtc ggctctcccg
2881 tccctgactg tatgtaataa tggaaagatg tcctgcgtgc tgaaacagta gctgccctgt
2941 taggttattc acattgcttt gatacgttct ggtagagttg ggtccgttgt agccattttg
3001 gttgtttaaa gttttggttt ttttttgtt tttttttaa ttcagcagag aacagtaatg
3061 cctagcttcc gtttttaact taacacttca gtagaacatt ttcttccaag agggagattt
3121 tggcctaagt aaagtagtgg gctcttttt aaaaaaaaat taattttact ttaatgtgag
3181 caaatctgta ttggtatggt gttctgcaat gcattacact gactttgaaa atttcgagta
3241 ctaatgcctt atgtctgggg ttaccattcc ctgtgcatca catactagtt agttaacata
3301 gcattttgct tttcccatgt aatttttcc ctatataata ctggattcct gatactaatt
3361 gacttgatac aaaagaatgg ctggatgata tccagataac gtataataca tgggcttcac
3421 cacaatcagg ctctgaataa atacagacct gtcagagatt gataaaataa actacaatgg
3481 atagtgctgt ttaaacagtc cattcaataa catatataag ccagcctgcc ttccattgtg
3541 tctgaaattc ttatttttgt aggtaaacaa atgcacattc agcactgatt gaatagcccc
3601 ttgaactatg ctccacagtt tgcgtttggg ttaatcttgt cggttttaat atagagagaa
3661 aaaagctcaa agcaccaggg gtggaattgt tagtgctttc acatccacat tcctcacatt
3721 ttgtcaggat gataaactgt aggtaatgga ctgtcgttgt tctgcaggac aactgagcca
3781 ggcagagcac aaagactaag ctaaagcgat acctcacaac atgcttggta gccttctttt
3841 cagatgagaa tttatttgag aatcatgtgt ctagggactg cacatcttaa cctcaacagt
3901 tacagcttca agccccagaa acaggagctg gaggttaaga tgatttgcta agcacctggt
3961 tctaaatctt ttacaaagca taagctgttg acgctggttc tgccgacgca aagacatgca
4021 gatgactcca acatttccag aggcttctga cttaagctaa agtgtgtgga caggtgaatt
4081 cgccatgggc ctggagacca gcttgctaaa aactatgtgt ttgaatggtt cctccagaca
4141 gagtcagctg aagaacaatt ggtggattta tattaaaacc tcttgtctgt aaacttactg
4201 aggtgcatcc ttcggttggt ggatcagtga gataattgcc ttcagatgga cattgcaact
4261 ggagcaacta aatccttgct gtctttcctt cctctgaaat cttccaggta gctcccgaga
4321 gcttcagtat gacaccaaac ttcgggcgac gttttagagt gcgttcacct aatgggaaac
4381 tattcgagat cccagcgtga ctgcagtaat gcgtcatagg aatgggagtg gcaggggaaa
4441 aggaaataca gattgtagac cctaataaaa aaatttttag gaaagatatt tctttaacgt
4501 tttatgagaa cttcattctt aaaatactta attgcaaatt agacaaatag aagtgctctt
4561 ctaaggaagg tgattaaact ggtcctccta tcagcctaat ctctgcctgc ctttgctgct
4621 gacataaaga acctgttttt caggtcactt aatatacatc tacatagatt tgcttatgag
4681 ctcacccttt gtgtagcgga gtagagcctt aaagaggagt gctcaactgt ttaaaatatt
4741 ttgattaaaa tatgcagaac ccatagaact ataagcttct agtcaggaat tagctctttc
4801 agggaacagc tccccccttc tttttaaggg gggaattaga aggaggctgg gggaggaata
4861 taagaacagc aaagaaggaa ggatagcaaa tgggacatgt tccgaacagc ttggaaaaac
4921 tcctgtggct tcattgtctc tataaagcca aagaatacaa agacataagc aattcagccc
4981 ttctcccatg atggaagatg taaaccgttg acatgcctcc cctgtttaac ttgtttaatt
5041 ctcattttaa attcagcacg atactagccg tgtgaactct gaagatttct ttagtaatcc
5101 attttgtagt tccgaatcaa aaacaaagtg aaagggtctg acacaatttg cttttatttt
5161 taggcaaatc aaccctggtc atagttaata aggggattac aactcagact aggtctttac
5221 agatgtgatg taaatcaagg gcagagtata aagaaactga tccctttga ttgaagtata
```

Fig. 63B

5281 gtaaaaaggc atagagaaac tagcagcagt aatctgattg tatggcaata aaaccaccat
5341 tttctgtctt tcagataaaa ataatgtggt aaatccatgc agttcataag atgtaaaggc
5401 agataaaggg tgaagccatg gcaacatata gattagcttg atgttagaaa tgacacgtct
5461 ctgaaaaggg cgcgggacga aggcccttgc ctccaggctg ttgggcatta tgtgagaacc
5521 acacagactt ggaaactggg attaggaagt atgaaagctc tacttgtggt ctgggatggc
5581 tgaggcagta aagaaaagct gctcagttct tgctcattgg tggtggataa tatggcaaag
5641 gtagatttca ttgactgcct tttttataga ttgagattgg ggctgattaa aacttcagat
5701 cactgcagtt gttagggcct gggagatttt ccttttaac tcctggccta acagcagcag
5761 ccgttctgta ggattaactg cacttcgcgg tcgttgcctt aatctatttg ggcttcaggc
5821 agggacatgc tgggaaggaa cagagaccag aggggatagg tagggctggg gttatctgaa
5881 aagaaaacag agacctttg atttcagcca tcttttcaga cccagctccc tctcccgctg
5941 catgggagaa gcaaaggtaa acaggacaca ttgtccctct ccctcagcca cagagctctt
6001 ctgtgagttt tgtctttccc accctggaaa aaaagataaa atacaatttt taaaagggga
6061 gggaggaatt tagttttaat tcaaatgagt agtaatccaa tatgccaaaa gcagtgggct
6121 ctacctagat gtaattttac tcgtaaatgt gagtcttaaa ctttgagttg aatggggcag
6181 gctgttagag gtggtgtaaa ttacaggatt ataaaaatgt tagtgctgcc cagccttaaa
6241 gtcaaaaaca gaaaaatctc tgtgctgttg agtcttcccg ccctctctcc tgaacaacct
6301 tgtaagtaag ctagactttt gtttttgcct tccatacttt ccatttcagc cattaaacaa
6361 aataagccat tgaaaccacg attgggttcc atgcagagtg acatccgcaa tcgggtcaag
6421 ccagaaggaa atacttgctc gattgccccc tatttggcat tacaggaaag tctccacact
6481 ttggaagagt ctgaactctc aagacattga aaatgccaaa ggctgcaaac accctgtgtc
6541 tttcttgatg gagtgcatct tggtgtgttt tacaaagggg aattcagtgc tgttttttg
6601 ttgttgttgt tgtttttttt ttttaaagag cagcataggg cccttctaga ctcttggatt
6661 ctgtgtctga caaaaatggt cattaaatga gcaatattat aatttagacc catttcactg
6721 attttgttcc aaattctcaa ctgacttgag catctgtttg gggctgtaga tacattgccc
6781 ttgttgactg tttttctcgt ttctatggga attactgtag ccattactat gtagctttca
6841 tagactcaaa acatttttaa agtattgcat ataggctggc catatccagt gcctgttact
6901 ttaccttctt tttctaactt aatgcagcag tctgtattaa cagatccatt tcatttgtct
6961 agcttcatca gagagaggct acccccctgat ttacaggctg ctcacatcca agcaccttgc
7021 attctacact tgacagtgat tgctaatggc ccattcaact aaagtatttg cttgttaaca
7081 gggaacagaa catgataaat gtccagcaag cttgctgcct ccttcagctt ttcaaacgca
7141 gactggtgca tatttatggc aggcaaatga caaaagaaaa agctgaattg ccctggcctc
7201 cagctttcta tcagaaacag ggttaaagtg attaaagcaa tcattcaaga aagccctgcc
7261 gtttgtttac taaccttcat ccaacattta gctttgtagt ctacctgtga gaagatattt
7321 cagaagtatt agagataagg aaggaggatc tagcaaacca gtgaaaagag taggtgacca
7381 gttataaaat gctttccatg cacattgaat gccaggcgaa cctatttctg ttattccagc
7441 agacaatcag cagtggctct agattattaa catattttcc tttcatgtat aaattcaaat
7501 atgtaattct agtccaaagc attctgtggc tggtaagcac atacttgctg atttcaaata
7561 agaaaacata gcaagggaaa gctccattaa acaagttgtt tctgccctta gtaattctct
7621 aaacaagata ggaagaaaaa gtggacagta gtggagtatt aatagtgtgc tcttttcatt
7681 ctctaaagca cgagtaagta agcgttcaaa ctactctgtg gtgggcatac atttagagcg
7741 ctgtgaatga accactgctg ttctgccata cttaatttat ttatattatt atttttattt
7801 tattgttgtt tttatgtatt attataatta tttatttata ttactaattt attttctcaa
7861 tttaaatcct gttgcatcca attttaatta cagtttttgt atctgccttc ccatacttgc

Fig. 63C

```
7921  tacccacgtc cccattgcca ctgcggcctt atccatgttt tctgtgtaca ccactctcgt
7981  atcaccccag aataattatg agtgctaccc agacttttga aaccactaga gtcaacatgt
8041  ttgtctttga ggaaagccaa tgatgcttta gcatttttgg caggggtgga tgtgtgttta
8101  agtggggtgg gtgcagctcc ttattgtctg cctattctac tgttgttccc aatccacatt
8161  ccctgcgggg cacctaacct gtgtgcatag caaagaattt ccgaccttca gagccagaag
8221  tgtttctcaa ttgatctctt ccagcctagg gttatagctg atgaattata atccttgctc
8281  tttccacacc tttacctggg cttaccatgg ccctaaaaca tttgcccaga atcagaattg
8341  tctcatgagt gagtggggca aggcaaatcc tgttccagac cagctgagaa tgtacctagc
8401  tgcagaagaa gttagaaagt gtcatctttt acttatctac cagaactata ttcgaggtac
8461  attttagatt taaaaaaaaa gcaagttctc gtaggccttg aatccccccc ttgctatggg
8521  aaaatggatc attattataa tggactgtcc agtaaagttc atgatttctc ctagacatgt
8581  tctctctctt tatgacctag atcaagagtg atctctttaa gtcttttctt cataatccca
8641  cagcactttg tacttagatg tacttagaaa gaaccatata cacggtacgt catgattgat
8701  atgcaagcct tcaccactct acctgtccta aaagtcaggg acacaccttc ttcatttcat
8761  cagtccctac ttctatccag cattggcatc cagtaagtat tagtggaatg gacagacaac
8821  ccgaatttgt gctgatggca gtttaccctg ttttaactgt catccttctg ctactagaca
8881  tggatgagac ctgagacgat gggactgctc agaggtccct ggctcttgaa ctttagggca
8941  ccagaatccc ctgcagggct tgagaaaaca ggggtttctg ggccccaccc ccagagttcc
9001  tgattcctga ggtctggggt ggggcttgaa gatggacatg tttaacaagc tcccaggtga
9061  cgctggcaac tgctgcctca gggccatgct gagaaccctc gccctacaca aacctttctg
9121  ggaaaacaac tcaacattaa agctgtttgg ggatctctga agaaatctgt agtccttgcc
9181  ttgttggggg agcatcaggg atctaaccat tgatggtgga gtatttgttg ttaattcagc
9241  aagcaactat taagtgttag gcctgttact cggctctaac aatacaaggc agagtgacct
9301  gtaccctcga gatttaaagt ctaagtcctg tagagagaag cccaggtggg agcaagcaca
9361  tttagagtta ggtgcttggt gcaaggtggg gacacagaag aagggaatgg catttgcctc
9421  tggaggggtc cggaaacagc ctagggagga ggagcttgag tcttgaaata ctgtgggcat
9481  ctctaagcaa agtcacagta gacagctgaa ataaagaaaa tagtaagcaa gccaaagaaa
9541  cagtatttca gccaagggca gcgtgtgtct atcacgtcca cctgtgaaca cgtcccagga
9601  ttctctgcat ccggccattg ctcaagacag atccctcaca ggaacagcta agccactgat
9661  ttcagctacc tgttcacgtg agaattatca gtacctactg cttttcaaaa tgagtatgat
9721  catggatagg tgaggcaatt cagtttcgca gagacagtag ggcaagtgcc actgtagttt
9781  agttaagggc acatgcttta gagtttggct atgtgagtcc aatcccagtt tagccattta
9841  ttagctgggt agctttagga gcagtagcct tagtgtctct cagttgtccc atctctataa
9901  tagggacaat aacataatag tgctgaataa aagagtaaca aaattttggt caacatttaa
9961  tgtatttaaa gagctaagct ccgtgattgg cacaatgaac caatcaatca aacaccagtt
10021 gttattaata aaagtcagtt gaatatgtac tgtgtgcctg gccgtggttc aatttgcctt
10081 tgcatacaag gaaaaaatta aaatactctg ttaataaaga ctatagcata atactttcac
10141 cttaaacttc ttgatgttaa tttattttgt ttacctgcca aacttctact cattccttat
10201 gactttctgc tacatgaaac acccttttgta attcttttgt cctattaaat taagttctct
10261 ctcctctgct ttcctgcttt tggtgctttc taataacact tttaaccctg gactttctca
10321 ttcagctgtg caactgtgga ctgagaggag gctctttgaa ttcattttgt atattctagt
10381 agagagtact gtgagcagtt gggttgttga atgaatacat taattcaacc tggagggatg
10441 ggcagtattg catttttttac attgatatta catgatattt agaaaactgc ttaactggtg
10501 gacgttgttt tattaacagc attttgtgta tagcactcac tatgtgccag ctgctattct
```

Fig. 63D

10561 aactgcctga caaatactcc tgaaaccttc atggtaacca tatgagggaa gcacttttaa
10621 tatatccata ataccaacgg ggagactgtg gccaaattgg ttaattaact tagccaaagt
10681 catattgaac taataagtgg atttaaaccc agctagtctg gggccagggt ccctctttta
10741 atcttctgcc tcctgcttat gctgttgcat ggagtagtct ttatcatata actaaattaa
10801 gcatgcattt gcttaaagca gtgcatacat gatggatcaa aaagtttgtg gtataattgg
10861 tttaattctg tcattatcca ttttgattta tagtcacttt cttatgatgg tcgtgtagtt
10921 ttaaatggaa cctttgaatc tttgatataa taaggttatg tcaaatcttg ggtataataa
10981 ggttataccc aatggaaaca gaataatgat cagcccattt aaaggatgac tggagagtta
11041 ttacaataca taatagtcat gcatatattg agtagtattc ctttggtaac attttccttt
11101 taaaaattgt aacatttgat tgttccttgt tgggagaaaa ggaggtcaga tttttgaggg
11161 gagatccatt tggtgagatg ctgagtgtgt gtcaagctaa ggagatagta tgacatcttt
11221 tttagagtct agtcacaatt aaatgccatt ttattttgga ttttgggatc cgtgccagct
11281 tccagcttgt cagagctgag aagactcaaa tcaagtccag gcttatttct acagcaaact
11341 gggattctgg cttcttgccg gtggattcat tcagtacagc ccatctggct tttgatgttc
11401 tgcaagtttg gagccatttg ttgaaggaag ccaggcggtg aatattggtg gtcctggggt
11461 tctcttgact ccaagtggtg ccccttggtt tgcattttca ccatgcttag catctgctta
11521 cctggagacc atgcagccgc cggccagagg tctccaacaa ccaaatcttc atgcctttta
11581 gaactcagag tccccagcac atcctccttc ctcctccttg tccaattact ttcatgcagt
11641 tctcagtagc tgcttgtttg aatcacttat agtatttaac ttctagggtg tttttgggtt
11701 ttggtcaagg taattccagg ctgaatgtgg tgactaagca ggaaataaat gggtcgtcct
11761 caaagttaca gtggagcgct gtttctattt tcctaaggta cacagttgtg ggggcgatcc
11821 gtatggaagt caggaaccca gtctgatttt gcttcctttt gatggtagca gtacagacct
11881 ggctgttttg tagcctgctt tgtttttctt ccttttcttc cctaacttca cgggctgtgg
11941 caaagccctg agacgtgcag gaaaatgtct cctgtcatac gcccacagca gacctagccc
12001 tgaccctcct ctgaagccca ggaaggaggt atctgtgaag cagcctgctt gtaaagcaat
12061 tgcacacagc cttgtaaact gtgttactgg gctgattata cttgattggc aaggtgaatc
12121 tcttatagca aaagagaact tggagagttt tatctcatct tatgccttat taatttgttc
12181 attctttaat tacacagcca cctattgagc accctattta tgcaaggtac ctggtcgggg
12241 gtcagaggga gggtcccatg gtaaacgaga cagactcaat cctggaggag caggaatggc
12301 agcccctcgc tgggctgttg gccccaccaa aagggaaagg tttcatttta ataatacatg
12361 ggtgaatcat ttttgtcaat aggcaaaatt ctttgtagtt aaaaaaaaat atgatggtag
12421 gaaggaaagg gatgggcaga gggttaaaac aaaagatatg ctctccctaa ctctagattg
12481 tagtattgtt atgcttgtca ctgtagctga attccatttc tttgagtttt ttcaatgcca
12541 aggcattccc tgtatgactt acgtgagcct ttcatctccg cgatttttcc cattcaggta
12601 aatgagcaaa tggatttgaa cactcatatc taaaacaaga gagaaccagc tggaaatgcc
12661 ctttgaattt ctttctctat gtaaaccatt tttctttctg gtgcctcacc tataaataac
12721 aggagttcca ccttccttta tagactcttg ctgaaagcat ggtttggaac aagaccgtac
12781 aggtgcacac aaattacagt tgggaaagaa gcctgcagtg catcttgtct ctgaaggtta
12841 tgaaatcctc cttttagtaa tggagctggc gtgatcaagc cagcaggatg aaatttggca
12901 tttgtgagat caccccccct ctcacttgcc cactgtacat agcatcccag ccttactctt
12961 caaatctcca catttttttct tatctagcta caaaattcat aggctgattt ttttggggtg
13021 cgtgtgtggt tttttttttg ttttttggt aaataaagac ctgcattttt attttgatat
13081 aggtggttga gttttgtctt taatttcatg acagagattt aactagtctc aacttttgaa
13141 aagacaacaa tgatatttgg ggatcacaca cttaaagtta gatttctaga tgattaatac

Fig. 63E

13201 caaagtagat gatttttag cctcagccat ttataggtat gcccttctgt gaatttttta
13261 tgacagtgaa aatcatggca cagataaaaa ttaaataaat acttctgtta ttttcctgaa
13321 gaaaaaaaaa aaaagcttaa actatgagaa tactgtcttt gagcacttta aaataaaatt
13381 gacttcagcc agcaggattt tgagcattac atcacaaata aaaaacaaga ttaacatcaa
13441 aaggagtcag ttttcattca attgtgcagc actgtgggct gtgaaattta atattatttt
13501 gactcatatg ctaattgtag actgacagag gaaaatggat tgtgtttaaa taaaaggata
13561 cacagcatca cacgcagctg tatcaaatac aagttgaggt ctttgggcca ggaactgggg
13621 gccctctagc tctgttattg cagattcaag tttgacaaat aaaactttcc tttagactgt
13681 agtttaatta ctttttttca aaggtatgcg tgatgaagag gcacaaatac acctcacctt
13741 gaagagttgc taaactggtt tgtgtgccga tcagttcacc gtgtgtttga atttctgtgc
13801 ttctcatctt tccttttctt gaaaagattt tgcttgtcat tggtgtgaat tgtacccccc
13861 acccccaccc atctagtctt tgctctcaga tttataacac tttaatggtt ccaaattgta
13921 tagcctgctc ttagacccct tttcttttcc ttgaataaat caggttcatg ttgcagacga
13981 tatttgtttt aggaaagtgt gaaagaaggg gcacctgtga aaacacgcaa ttgttccaac
14041 acacatatac atccaaatta aagcagaaaa tgtcaaagcc tccaatcact accttatttc
14101 ttggaggttt aaagccgctg agaagatagt ggtgccctcg ctggaagttt taaggtaatt
14161 acttttttact ctaagcagta gtatctggta acctaattcc gtataaacct gacaccctat
14221 cgctacaccc cagtatttct ctgatttcag aataagtctg cgtagaaact tgttctgatg
14281 ttaaagtgca aaaggggggca gtaaagtgct atccacaaaa aaggaaaaac attttccaag
14341 tatttcttat tactgcctgt gtctttcgta ggccctgcct ttatttattc attttataac
14401 aaaactctta tgtttggggc attcagagaa taccttatta agctgttgca gcaatctagc
14461 attaaatgga agacatgcaa gactgaagat cctgcctgtt tatgaagtgt gccatcaaat
14521 tcacatgctc atgatgcaga gtccttcttt gggagtattc gtattcccaa gtgcacagag
14581 cacttcggaa aggagccttg gtctttggtg ttaatgctct cctagctccg tatagatgtg
14641 gcaggcccaa agtacatggt ggggtgaagg gtcaagggtt tgggcttatc cagagcagcg
14701 tgcatccttt gtcaggaggt gactggaaac accagccaat tacagcagaa ctgcagactg
14761 ctcatctgca ttcggaattg cagatgaacc agtttgtact cgacttctct tcttcactgt
14821 aggctttgac atttaattaa aaattaaagc cttttatgga aaaagtacat gttttccaaa
14881 atggggtaaa ttcgaagtat acttgataca gaacactggc ttgggaataa acctgtgata
14941 ttacatgact tttggtttgc aactgctagg ctgagcctct ttgtaaagct gggatttaga
15001 atctttgaaa tgtttgtaca gttcaatgat taagcataaa ttgtatatat tccctttttt
15061 tcacttattt gagtaaacaa gtttgttact acagcttctg tggactcaga gatttatgta
15121 ttaaataggc cacaacttca actaggataa ttttatttat ctgcttgtta gggaattgca
15181 tcaaaagttt aagtctgtag gcattaaata ttttaaatgc ttatttttaa agtcaattat
15241 gaaagatagc acaaagtttt tctgaaacta cattaaaaaa ataatgtttt aatcttatca
15301 caaaagcatt gactatttat tgcaaagaaa acacagaaag ctaaaaatca ttctaagtcc
15361 accattcagt agcccaaagt ggtctcaggt aaaggcggtg tgtgtgacca tttgtttatg
15421 gttgtctccg tgcagtcagc aaaataaaca gaacaacatg ccatatatta ttgatgtgta
15481 tattttcaac tgaaattagc catctgctta caatgatcat atacactaat ggtataattt
15541 tgaaatgaaa agaaaaataa aataattctt tgtggagagt aatgcgaatt gacttatgaa
15601 tctcgccctg cttggcagtt tgctctagag gtagaagagc tttatgtgtg ggcctcctcc
15661 ccccccacac atttattctg ctcacacttg caccagcatc catgtcagga ctcaccttgt
15721 cctgttacat gagtaacatg gccctgattc tcaagtgcat gataactgcc ataattacac
15781 ataaatatta aatatttaaa tagatcttta cgtgtgtaat attaggtaga agtggctctg

Fig. 63F

```
15841 gatcgaatct gatgcttttt aaatagaagc tttcccacaa catttccaag cactgtcatc
15901 gtgtctgtct cgatttgggg tttacctggc ctagttatct gtctgggtgt agaaactggt
15961 agttcctgtt tgtatctttt ttgttctgat ctctttattc tgtgtcagct aaatattctt
16021 gcagtcagtt actaacatat taactcatcc ttgtttggaa actttggcat atccttccat
16081 ggtttccttc cgtggacctg tcgcgtctct caggagagcc accaggtata ttgtcacaca
16141 tttcgcatgt attttcagag actacagcag catcaagtgg ccccccagcg atttgggttt
16201 tcttctcggt taatctacac tctttggcca accgtgagaa aacttgtaag aaggcatcag
16261 atgtttgtgc taaggtgcgt gtagtatggt cagaggaaga aagaagcagg gaaaatggag
16321 tggccgtggg tgggagggga agcagggagt gcaatttcgg gttcactaca cagctctcca
16381 taaacttctc cactgctggc ttcccacgga tcctcctatt acactgggca aagtgcagaa
16441 atagatcagg cgaccactgc ctccgtccat ttcccaggca ccctgtgaga cccgataatg
16501 caatacaggt cagcagaaaa gtccagactt gacatcccaa cgtgccatgg tctggtctgt
16561 gaatgaaaat cacatgaggt gacctctgaa ctctaagtgg ctggtttatg ttttcagtgt
16621 attaggcccg tgttttaaac aagcatgtgc tcgtagtgta ggttaaaact ttctgttgtc
16681 ttcattaatt atgctgtgtt ctagtctatt aatattaaag aatattgtgt tgcataatga
16741 ctaatttttt tatttttgg agacggagtc ttgctctgtc acccaggctg gagtgcagta
16801 gtgcgatctc ggctcactgc aacctccgcc tctcggattc aagcaattct ctgtctcagc
16861 ctccgagtaa ctaggactac aggcgcccgc caccatgccc agctaagtgt tgtatttta
16921 atagagacgg ggttttacca tcttggccag gctggtcttg aactcctgac ctcgtgatcc
16981 acccgcctca gcctcccaaa gtgctgggat tataggcgtg agccaccacg cctggcaaca
17041 taaggactat tttttaaagt ttttacaatt atgactgtga agttgaaatg tctaaattat
17101 tagagatcca gtttagatta ctaaatattt atgtctaatt gagatgatta gacttagcca
17161 aagtatccat gtagaagtat tagagtctag attggtgaaa aacttgaaaa agcttggctt
17221 aagttcaata ggtaatccaa gagtaaaaac agattccaat atcagatctt ttcaccatag
17281 tcatgttaag tttggaagcc ctacttgagt gtttccagtt ttttccacat tatattgtgt
17341 ctatatttga ttcaaaggca gggcatctat tgtcttgctt aggactgatt cactgggaaa
17401 agccactgga gttgcctatt tccactcagt atgcctcact cttagagtag cttcccatgg
17461 ttcccaggca ggccctccag tgagaatgca ccaagccaca cgccatggcc tgggaagcag
17521 tcctgaacct ggagattgtc ttgatggaaa ggaagaggca gccttcccct cccaggaaga
17581 tagtagagag cctgctctga cttcgctcag ggatggaact ggtctggctc agttctctct
17641 cctgtgtggg acatgaatca ctcttggtgg tctttgcttt ttatttgggc ttaaaatcag
17701 cagactttat taaatgacac ctctctctaa ccactctctg tctgggcgaa gtttaacaag
17761 aacagcctcc ccccatgtgg tatgggttgt aactgtggcg gtttccctct gctgtttttg
17821 gttacaagat gaacattatc tgaacacaca gaaagaaatc tgtatttggc atccataatg
17881 gaaagtcagt ttagtaattt aaacttagcc agttatcatc atcataattc tttttaacac
17941 tttcaaagtc agcataggag aagtgtattg ttgaatatta caaaatattt agggcataga
18001 tagatgtgct gtgtagtttg atttgttaat gtgtctaagc aatcaaagca acagaattca
18061 aatataaacc ccatcacttc caaaatagga actctgttta ctgacttgat tataacatat
18121 ggaactcaat tgttttccat taaaaaatga tactattagg aaactcaccc cattttcttt
18181 tcatatatat tctgctattt gcataattgt ctggagtcca tatgtaatat taaatgtaaa
18241 acacaaatgc catgtagctg gtctgtttct tcctcacctt ttggttcctg gcctcctggg
18301 gaagggttgc acatctgagc cgtggtctca gatgactgcc tcggaagaag cctcttccct
18361 tcaggcacca ctgatgtgtg cttggtgtgg agctagactt tccctggctc tccatgtgac
18421 gctcacatgt gcgtgtcttg atttcccttа acttcatggc ttatctatga acagcttgat
```

Fig. 63G

```
18481 ttgggggaaa aaaatgtgtt tcccaatgct ggagttataa ttgaatgtgc tgcagtcaaa
18541 actgaaatgt gtgcagagaa agggggcttt tcctgtcatg ctcattgggc accagtgtgt
18601 cttcacctgt tttgtgtgtt aggtccatgc gtcatgctga aatgaagaac atgggatgta
18661 tggggctttg gacagtgctg agccaaaagc aagtgctcaa aagcagctgt gtttgtatta
18721 ttagtggttc tggaggtggc tgattgcctt gcattttaag tagagaggga ttgtagaaga
18781 ctgccaatac ttagaacttt ttccagagag gaagggtcag aaactgcatc tgcagggctc
18841 cttgctctcc agaaatgcca gtgtgcctgg gagggcatct tcagaaatcc agtctctcct
18901 cctcagtgtg tcctgtaccg actcagtggt tctgtcttca gaattcctat catgtctgtg
18961 atctgcaaat agtggtattt aatttgactt caatttgtat aaatgttagc ttctatttgt
19021 tcattcctat tttttgttca attaatacat tatttattga gcatctactc tgtgtcagcc
19081 ccttgggtgt ttaatactga attagtcaca tgtgggactt gcctgccctc agggagctag
19141 actataaatt cctaatgatc agtggtctcc acttttctgt cactcataat gtctggcaca
19201 acataggtta cttgagttgt tacactcaca gtactgttgt ttgctgccat ggtgctttag
19261 gaagtgtgag agttcccggg aggcagagtc aataatgcag actacacgta gtgaaaacat
19321 ggccaggaga gctgtagttc aggctctcag ctcaactgca ctctgtccac tgagaagcca
19381 taatttcttc acttaaagtg actgtgcgct atggctgttt atatatacgc ttaaaaagta
19441 aaagctgcta aaccactcaa ggattggggc cttttgtatt gatttaatta aaggaacaat
19501 cattgtttta atgagctcta gaaacaatta cttttgaaga gccgaggatc aaattcttgc
19561 ctcacgtttt gccacagtgt gttctgaaag gtgaattaat gcttttggaa tcatcaggaa
19621 tagtgagctt tgtcacgatt tacttttac aagcgtatct aatatgcata ttgaaatgtg
19681 agcctcccca ccacacttcc gctttgataa gcatcccccg gattgccgtc actgaccatt
19741 atagattttt aacaaagttg gacagtacac actgaatgaa aactttacat caaggaaggc
19801 ctggcgtgtt tgtaaaatga attaaaaggc tcattaaatg atttatatga cttacgcctt
19861 ctgaaaatat ggcctcaaac acagagatcc ccaaagccac accgacccct gcgtcccatg
19921 ttctcgacct caccgcatca gcaccagcaa gacctgtcgc tgagacggtg agtgatgaga
19981 gtcaagagga gtgacttgca tggcctggga ggaaacctcc tgtgaatctt tagttaagca
20041 ggaaaaaaaa aatcctcatg aaggaaacag gatcttggga gcattttgaa tgaagaagga
20101 gcttagtgag ccaaacttga gacatagggt gtaatgtggg agagttttaa gatttgcaga
20161 gatgtacagc ttgggagggg gtgtaatgca ttttcttaaa agagctgaat gaatggttga
20221 ggaaatgggt acatctggtt tggttaagga tcctaatctc tgaagcctgg gatgccccca
20281 gggcttgtaa tttaggaata cttcccctaa tagtagctaa cccttatata gtgctgtctg
20341 tgcaggctac aaaaggagca gattaaggat agaaaaggtt tggagtgtat gagaaaccct
20401 aggcaggaat tgactcctgg tgtttgtaaa ccttaaagat gtcctaaaaa ggtcaaggaa
20461 taagacagga gaaaaaggaa atgtcaggaa gatgatcaat ttaatgttta tggaatttag
20521 tttgtactta ctgcccggca tcttgcctga ggtttttaac ctcagcagca catcagaatt
20581 actgtgtgtg tgttggaggg gctgggggag ataaagaaat tagcctcatc ccaaacattc
20641 tgattcagtc tgttacttga gaaactgaat tgtgttttgt ccataaagaa gatgaaattg
20701 tctacagaga acacattgcc attcacaagg ttgaggggat accacagaga ggctcccact
20761 gtgatttgca tttgtcaaaa gttctagaga attcttcaac agtacacaca tggttgtttt
20821 aaatatatca ttgttataaa aattcgtttt gagttctgtt tcacagaaag ttttttgaa
20881 tgaatgaatg tcatatatcc ttgctaaagg agctcagtta aaaaaaaagg gaccatcctt
20941 ctcttttggg ggttgtacag taacacattc ccaagaaaga ggtaacagcc acatacattt
21001 ttcttcccaa taaagagtgt gggtttttaa tatgaatcca tagtatgatt tctgttatgt
21061 tttgtgctgc ttcataacca cactcatgca cttttcagaa aattaatacc attcattagc
```

Fig. 63H

21121 ataaatcata aactattccc ttggtatggg tttgaaattg ggggtgccct atcatccttg
21181 ctttatctct tagtgaatta tgaccctgta gtcatcatgg ctggtgggcg tctctggtta
21241 aagaaagggt tggattggaa ggattcagag gcgattcttt gttcttaggc tttaatattt
21301 taatgagcct gcaggcttgg ctgcttacga acgagctgag atttctaagt gtgttgttag
21361 tgttagcact tgtagaagga tgttcattag gaagttcttg tttcagtttt tcagagaaac
21421 tccccattaa gaaagatcat tcaggaacat ggctaccaag aaagaggaaa gggaggaggg
21481 aggctttcag ctataagcat taaggggata ttgtatcagt agtcttagtt ctaaagattt
21541 gcttctgaga attaattgga gcaaatacat ctcaagggaa gaaaaaaaaa gatttatagg
21601 gcagggacag tagttgtcct tgcaagtaga ggacacttca ttttgcagct gaatcaatac
21661 cacaactaat tatttctggt tatcttttac gcatttgtaa gacattgctt ttgttcagtg
21721 taataaaaaa cccattgttt gatcagtgac tgactaatta tgataagtaa tttgaaacat
21781 tcttgatgaa acttgtctgt taattaacat caacagcaca gggaaactaa caggacaaca
21841 aagtattagt ggatccactg ttccctccaa ttgacgagct ttctctgtgg catgcccaat
21901 aaactaaagc tgccaatggt taaaaaataa caaacatgtg ggagatctga ctcaccacgg
21961 aggaagagtt atggtaaagt tacacaaagg agtactgaaa tattacaagc gaggggtgg
22021 taaagaaatg tcagcaggta gcctgatcct acagcttaga gtaaggaaag tggtttcttt
22081 ctgtctttcc tttttctttt aaagcttaat tccaaaatac attcatccca tattgatctg
22141 aagtaagaga cttttgataa attaaagtgt gaatctgaaa atgtgtagtt tgggattatg
22201 ggcattgcct ggctatcttg taactgtcat taatactgtt aatttttatc aactcaatgg
22261 ctttttttc ttatgctttt agatttctac ctggacaagg actggtacta tacccacaga
22321 taggagacaa attggatatt atttgcccca aagtggactc taaaactgtt ggccagtatg
22381 aatattataa agtttatatg gttgataaag accaagcaga cagatgcact attaagaagg
22441 aaaatacccc tctcctcaac tgtgccaaac cagaccaaga tatcaaattc accatcaagt
22501 ttcaagaatt cagccctaac ctctggggtc tagaatttca gaagaacaaa gattattaca
22561 ttatatgtaa gtataatttt attcatttat tttatagaaa ttaagataag ctatataggt
22621 ttgtatcaat tttttgtttc cttaaaatta ttgtgacaaa taatttgatg aaaatctatg
22681 tggaaaaatt gtccccccc ccttttttt tttcaaagaa aacttcattg aatttgggac
22741 cctgtgctac cagtattcat taagtataca tacccaaaga gaaaaaaaaa cactagaatt
22801 cttaatagta ttgaaataaa tgtattatat gaatatattc agcatctcta ctgacaaaac
22861 catttttaag gaccattggt ggattttgat aggtaaatct tgtgcattgc cttttctctt
22921 cacccatcca tccattcatt cactcattca tttcgtattt attctgtgcc agagactgtg
22981 cttaagggct agggattcag cagtgaaagg tggtaaaata gcatgttttc ctcaagaagt
23041 taacagtcta gagaagatgg agctcataaa ttcgaaagat ggggatgaca ggtcacatta
23101 aaaccagatt cagaagaaaa agacgaaact tggtttgctt agtacattac tctttttgc
23161 atacatatat ataatttgac acgctgtttc aagaagagat ggtacgtatc ccttgggtca
23221 tatctgaggc tgacttgtga ggatgtgaag tcagctgatg agcacatttg gagcccacgc
23281 ctactatgtg cagatctctc gtcagcgtca ttcccagggc cccaggtggt gttaaagtct
23341 aggtgactca gacagctgtt cgcgtcattc aagcaatgaa gtctttttc ttaatttctt
23401 tggtttaaaa ttatactcat aattaattgg gttgaatttt ccagtggctt ggttaccata
23461 gacttcagtt tattagggaa ctgctatctg ccactggttt attatttgcc ccaaggtgga
23521 ctctaaaact ttaggtagga gactcttggt gatcaaactg aaactcttgc atctcaacct
23581 atgagccgca ctttattgtt attttatttt tttagagaca gggtctagct ttgttgccga
23641 ggctggcgtg cagtggcatg atcacagctc actgtagcct tgaactccag ggctcaagtg
23701 atcctcccac ctcagcctcc aagtagctcg gactacaggc atgtgccact gcacccagct
23761 caagagctac acttcaaagc acagaatgaa aacctatttt taaagccaac ttgatacata

Fig. 63I

```
23821 gagtagctta ccaagaatta gtaacaacaa caacaagaaa aaaaagagag aatgtggtag
23881 agtatatact tagtaaggag taattattat aaaataaaag cattctgaaa tgaaacaggt
23941 agatggggtg gccaagtatg cagcatagta gggaaatctt tgaaaatgta aaatagttac
24001 caggtaaaat aaatggaaac tttaagcttt tggaagccta acaatgtatt tatattagta
24061 aagactttat ttttttattt tattttattt tatttttgag acggagtctc tctctttcgt
24121 caggctggag tgcagtggcg tgatctcggc tcactgcaac ctccacctcc tgggttcaag
24181 tgattctcct gcctcagcct cccaagtagc tgggactaca ggtgtgcgct aatttttgta
24241 tttttagtca agacggggtt tcaccatgtt ggccaggatc atctggatct cttgaccttg
24301 tgatccttcc gccttggcct cccaaagtac tgggattcca ggcgtgagcc accgcgcctg
24361 gccttagtaa agacttttaa agtaagactt tttcagtgaa agctactgtt aggcatgaca
24421 tttacaggca actgaaactg atcagatgca tttattaaga aggttaatgc ccctaggtgg
24481 ggtgggagaa agaaggtcgt ggtacgggaa gaggggacac actagagatg agatgcccta
24541 gggcagtgaa cgcatgtccc taatgcgtgg atgcagccca cgtccaccga taatgccgac
24601 acacccagag tctctcttct tactttagct tatgacttca cgaagaatgc tttgcaaatt
24661 ctaagttcgc actgggcgca agtggaattt tagtaaacat taagagttta acctttagtg
24721 tgaaataata tgcaagatat gcaaataatt gtttaccaac atctctttgc ttaatgtggt
24781 gagcatttaa taattgcttt ttattaatac atgagagatt tgtatttaga agcagtttaa
24841 tttataatta taatattaat ctacacaata acgacatcta ttattttctt tttttggaaa
24901 ctcttcatac cacactaaca ggttcattgc agttactgaa ctactctggc catcagagct
24961 ctccttagag ttacgattta ccatgcaaaa gcatatggta gcctgggata aatgaatctt
25021 tcttaataca gaattgaggg tctcaagttt gaaactacga gaggctattt gaatgttgct
25081 ttgggggact gtcataaggg ctgggtggag gactcagggc taagaagttt gccaggaagt
25141 ccagttgaga ctttcagcag agttgaaaga cttccacgat ggcgtaggca gaggaaggcg
25201 tttcagatac ttgggaaaat atagaagcca atttctcacc caccctacag caaagctcat
25261 tgatctacaa gtttccctag aaaggaaatg ggaaatgcag agaacaaatg ttaaaatagt
25321 tttagaaatt aatattgact ttgtattgct tctgcataag ttccaagaca ccaaaacaat
25381 gaatggattt taaaaagtca ctactttgca tatcagacaa atgcacacac acacacacac
25441 acacacacac acacacacac acacacagtc aagctctgta ctggcttttt tgagaaggaa
25501 agtgtttgaa gttagtaatt tttatatcag tacatttata aatagtgcta ggtagcatga
25561 cggaaagtat taaaatttac atgtatattt ttaacacttc aaatcgttgg ttcactttga
25621 gacagtaaat aatattagca tttgagttca gctttaataa attctacatg ggtttaaccc
25681 caaatctgag tgtctagttg gtaagcgcct tcagaacgag cagtgttata ataaatatgt
25741 tattgtgtgc tggtttcttt ccatggagag gaaaaagaga cctgatgctt tggaggagtg
25801 cttgactttt ccccagtgag gagtagtcca gagggactga cttgcattgg ggagtaccct
25861 acatgaacag catttcagaa gaattaaacc aggaacctag agtcctactt gctagtcctg
25921 cttcctaagc ttaatgagaa agtcaatttt atttctttga actttaattt atttccctaa
25981 aaaacgcttt tagtattgtc attgttctgg ctaatgatgg cggtctcctc cagtttcaag
26041 ccaccttagg gctgggcata caaatgcaat ataggatcac ttgttagtgt ggtttcaaat
26101 ggacatgatc ctctgtaaat tctttaaaaa catttaattt gatttgtggt gttacctgct
26161 ttaaaatata gtcatcacac ttgtgagttt cagacgtgaa tatgaatttt taatttgaac
26221 tgtattttta aacacactaa gtattaacta agtcccctta ggagatatgt ggcaaactga
26281 tatgcatcct cattcattct tctcatagat ggttatttgt tttttaactt gtggcaaaat
26341 tatatatgaa tggtcaccga cttaaaatag ttccacttaa atttttcaac tttctgatgg
```

Fig. 63J

```
26401 gtttattgga gtattaaatg tattttcaat ttaatgatat tttcagctta ccttgtgctt
26461 atcaagtatc aagacatagc cccacctaag tcatggagca tctgtatatg ggtttttatt
26521 cttgtttaga attgactttt tcaagtgacc tatttcagta attagccctg ggcctgattt
26581 gcataatgag atctcctaat cttcaagtaa tgcaaagatg gagatattat ggccatgtgg
26641 tctgaagaga ccttttcttt attatgttca gatctttaat tgccttaaaa atagagtagc
26701 taatttacct aacctctagt tattttatta ttgtctttaa agtttttttt aatgttcatg
26761 aaataactgt tctgaaattg cctattttca agggaagctg tgtcttagac ttactaaatg
26821 ctccagttga tactgggaaa gccttcttgt gttcgtagcc tttatccgta gagttttctt
26881 tgcagcattt tctgtgcctg gtttagtttc ttttcagagg cgacacccag agctgaatga
26941 gtcagcaggt ttggtgtgtc gacccttttgc aacagctgtc cttacgaagg ttctgtgggc
27001 tggttattct accttcgcat aaaaccttgc aaaataaccc acaaagaggt tttcgtcaca
27061 ctaccaaaat catgtgagtc agagatggat gaaaaatgaa tgccattgtg ttcatacttt
27121 tccagtgaac agtagctaca gcagagctgt tagacaaaga aaaccgtatt aatgaagcgc
27181 ctcccaattt agcttcatat ggcttttgca ttattttgct gcaaatccat agctaagaca
27241 catcttgtgg catagtccgt aagtcatctt tccgaaggac tgtttgatta aaggttgttc
27301 tgtgagatcc accctgtgtt gttcatggca tcctcttgga ggcctccctc actctccatg
27361 ccttggcaaa gtcttcctta aggaacactg aacaagtctg gagaagctgc catttcttag
27421 ggccctcatt ggttcagttg tctatagctt tttatttttt attttttttt taataaagag
27481 tatgtaaaat tggaaagctt cacaaacagc tttgctattt tttagacatg tactccactt
27541 ctaagcaaaa tcacaaaata aagtaaaatg cttccacaaa tataatgaaa caatattctt
27601 aaagaatcaa agcagaagaa cttcagagtc tgttgcttat gttaagcata tatttgtttt
27661 cttctctgct tttgatttac ttatttctgg ggtgtaggtt tggcaagtag tactgaaacg
27721 tactgaatgc actgttcttt agcaagatag ttacaggagc tttcaaatgt cctcttaaca
27781 tatagatttc ttttagaata tagaataatg tgtgggctgt ataaagcgat tatgtgcttt
27841 atttgatgaa ttatttatgt acgataaatg tagcaaaagc cacatttcca tcattaaatg
27901 taatcccatt tggtgataca gcaacatcag cctgtcattt gggtcctctg attgaggggt
27961 gaggatttct gtttgatacc ttgtgcataa tggctgcgtt caagcattta aactcatttt
28021 tatttctaac ctacagctgt catctttgta ataggatatt catcagaatc ttgccagaga
28081 ctgtgcattt gggatcttgg gggatacagc accaccacca ccctcccccc gtccaagaga
28141 aacagatcaa catcttaggt tgagagtctg gggtctggaa gacccgagtt cctgagtgcc
28201 ctttgacaag taacttaacc cctgtctgcc tcagtctctt catctgtaaa gtggggataa
28261 tgacagcacc tgcttcacag ggttgatggg aatccagatg tggtgggata tagaaaatgc
28321 ttattacttc caccttgac accaaataca tataactaag agttaacttt ggagcagggg
28381 aggaagtgtg aggctccagg ctggaggcag acctgtgttc ggctgcaagc tggagaggat
28441 ggaccccaaa agcttggctg atttgaagtc catccataaa atggaactcc agagagttta
28501 cacgtttcag taatgctgca taacttaatt ataagatctt ctctctttgt cttctttcag
28561 tgttataaaa gctcttttgt ccttgagctt cctttaccaa gaaacatgca tttatgtatc
28621 tttttgttca tggaattgcc caagcttgtt agcagatcct ttgtaagacc caaaagagac
28681 agacagggga ggagtcttca gatacatata atcatttttc ccaatttcca tgttaccagc
28741 cttgccagga ctttttctca gttccctgtt acacaatgaa aatagtgtct ctttattgat
28801 aattttagta gcatcctaat gtggtataaa tcgtcttcca gagaagaaaa tgtgtcaggg
28861 ttgcgttatc actgaggcta gctgggaaag tagatcagcc cattagtctg ataattcgaa
28921 gcgttgtttc tgttatttct gaacatcatg tgaactcctt ttctgggtgt attaaaggtt
28981 ttcccagtgt gtgtcagtga gactcctgat tgaatttaat atgaataaag ataaattctt
29041 tacatttaag gattaaagtc tcagcttctg cttaacttga gattgcactg agaaactcct
```

Fig. 63K

```
29101 ggctctcggg tatagcggag tcacgacctg gggatgtctg tcccatatgg ctctgtgtgt
29161 aagaagaaaa agctgctgtg gacggagact ctgttcacat taaatgacat cacctaagcc
29221 atcatgacag caagaattat ttaggaattg ctcagaataa aactgccttc attatttcat
29281 aaaatgtatc ttggtatctt tagcacctta tttatggctt tttaaaggtt cactgggatt
29341 tataaataat tggacaatgc tagagaccta gtacaagaat gaaagaggac aggcttcttt
29401 cttaataacc tttaaacatt catcaggaag ataaaacttt aaagcaaaat aaaacacatg
29461 aaaatagcca agatgcacag accagacaag caaatactac tttaacttat ttgtatagtt
29521 cttaagagtc acatttgttc ctgaagtttc aaaatctcgg gctgagtgtt tgatcactta
29581 gggaagtgtt gtggccttca catactcttg tctcactttg aagtctagaa acacaggtct
29641 tagagcaatt tttatcactg tgagaaagct gaaacttagt gtgagtagct tagtacaatt
29701 cagttggcca tcaaatgtca gaaacaaaac tcagtccagg gccgctggac ccttaggccg
29761 gcgttgttag tttacaacag tgcctcctgg gtccaaacat ctaagtgcac atgtagcaat
29821 agtaaagata gtatgtatgc atacataaca catatgtaga gacagcagag tatacgtaca
29881 cacatgttgc atacatagca acagcagaga agctcatgaa ctataaagga tggactgtat
29941 gcttgtatca gacattttgg tactgacgct ttgtcatata ttgtgtaaca tataaccagc
30001 ttgcaatcat ctgcccccaa agttgaacta agaaaatcct acagggtact aggaaaggaa
30061 ggccattggg aaaaggtggt tatagtggca atttgttagc tcttatgaat tttctttttc
30121 tttttagaca tactcttaat tccatttttt caataaatct atactatttt gtgtttttat
30181 gttagcaagt actttaagcc cctcaataga aagttgctac atcatatagt gattaaaaat
30241 aaaaatctct caaacataca agtagaggtg gtatgagact tcaaattccc ttagccaagt
30301 acaagtgcag cagttttgtt ggctggctgg ctgcatagaa ggactgatgg attggcagac
30361 cctcaagctg gagtgtaatt gatctcatta cagaggagcc aggctgggtg acagttgtgc
30421 tttgcaagtg gtttttgca ttggtgaagt agcccatttt gttgttcctg atgttaaaca
30481 ggggatgaag gtattctttt attggcacaa acgcgggaaa ttgctctgga ttcttagagg
30541 atagaacatg tcccctggac ggaataaggt tcatgtgtag ggcaaattta gataggggca
30601 ccttattggg gttactactg gtctctagat ggtcaaagca aacaacatgt ccatctaagc
30661 tgtgatgtcc atctaagctg tgtgtgtcca tgagagtgac gcattttctc ctctgcagtg
30721 ttgttatatt ctaaactgtc agcagacatt aattcggtcg ctggtgaagt cccaccgcct
30781 agagatgaac tctgcctccg atggatgttt tccacttcag tgccactcgt ctcgcaatta
30841 ctgggtcatt aatatcattg catgcaatta gtgacagtag aaagagctag agggttgtgg
30901 gatgtgcacc ctccccacca tgaacttttt actctgaccc tttcccagct agacctttc
30961 gtatcttggc aaggatattt taatgattga gactgtcaga atcttcagag caggcactgg
31021 attatgtgct ggaaataatt cactcaaaca cctgcttctc catggttcag aatattttca
31081 ttagatatta tcactatccc ttccctggga agtttcattt ttaaaaatct gatgcttaag
31141 tacagctaat atagacaata gggaattatg ttttatcttt agaactctta cattattctt
31201 ttctttaaaa atgtgagctg agtcattgct attgcagtgg tcatctggcc gcctatttt
31261 aaaacacaat tcctctatct tagtagattt tggcccatat taagcatatc aagaatgact
31321 ttttttttt caagacatgg ggttttattg ggggcttata tacaaggaaa gagagagtcc
31381 agtggcagtg ggctggacaa gatatccaca tggccctgtg gcagtgagct gggcaggaaa
31441 actgcaactg cttgcaaaca gcatgtagtt catctatagc attttcactt aacaccaccc
31501 agctaatgac ttccacctgg caaccttcat ttaatccaga acttaggacc tcgagtccct
31561 gtacggccca tgttccacag gatgggccga gggctcagct gttcctcata gacaaggaat
31621 gactctccac attggccact cccggattcc ctagctcagg acacatattc aggtgtgtct
31681 aaggctggct cttctatgtg aagttactta ttcttttacc attgactctc atgttcccac
31741 tatattaagt ttttctgaat tactgtggca ataagaaacg gtcccttaaa ttatactaga
```

Fig. 63L

```
31801 agaaaagctt ttttttgtt ttgtttttta ttttgaaatt atgttaaatt ttttttctta
31861 actgagagat tccacctgca taaatcgtca taacttttaa cagtaagatc ttagacttag
31921 aaagtgatgt ttttcctcaa cagaatttat taaaaatcaa gacaccaagc tgttccaaac
31981 aatagtttga ggggaaataa aataaacaac tccataaata atcttatgtt gttaaacatg
32041 tctctagcaa aacaaacaaa caaaaaagtc gggggttggg ggaggtgcag tttattgcca
32101 gtactgtctg gtctttctca gaaaagcgtc agtgtacatc actgagcctg gacggtatgt
32161 tttcttgatc tatacccccc atgtgtacat gtgcttgcac gcacacacat gtagacacgc
32221 acacatgtgc acctgccatc actttctgct cttccgtctt ttcactcttg agtgtctgta
32281 gccagtagct ttccaggtct gtatagtcaa agatacctat ggccctgaat gtcttcactg
32341 attgctattt gacattcata cggtttttaa tggttaaaag gctttatgcg aaagctgtga
32401 tagaatttct cctgttctag atgtggtgtt tattgcttta ttttgtgact tttctctcag
32461 tagattgacc ttctccctca gtgtccaagc ctcgcatagc atgatggcac ctgtaaactc
32521 agttctgtat cctggtatcc tttctcttcc caagtagaag caattaagta atatatgtca
32581 tcaaaacctt ttaagtgcac atacaaacaa aatcaactta ccaaactgct tcaaagttgt
32641 tccatgttta acactcttct ttctgagctc tgggtagaat gtcctattat tgttcatcat
32701 gaatatttga aattaaagaa ataaaactgt accattttct ttaagagcat ccatttgtac
32761 ttgataacat cttcagtcat atttcaatgc tggcaaagag gaggggagtt ctaaactgtg
32821 actcaatttt agaatctact ttttccaaat tattctgttt agtgcagaaa actaattaat
32881 agtgttgcat agaaaagtca ctgaagctaa gccagttatt acttcttaat gcatgattta
32941 ctgctttaag ttttcaaaac acaaccatag caatgtggta ttaattcaag tgattcttcc
33001 tatcatattg aacgatattt tcacgggtga aaaactcaca catcctacat cactgatagt
33061 ttatacagtg ttttagctgt ggctccctgc atgcaaaata agagttaatc aaatgtcagt
33121 gagaaccatc tcatcaagta gagggcttgt tttgtttaaa ttaactttgc taagtataaa
33181 tttcttcttg aaaataaatt ctgggccggg cgcggtggct cacgcctgta atcctagcac
33241 tttgggaggc cgaggcgggc ggatcacgag gtcaggagat cgagaccaaa ctggctaaca
33301 ctgtgaaacc ccgtctctac taaaaatata aaaaatgagc cgggtgtggt ggcgggctcc
33361 tgtagtccca gctactcggg aggctgaggc aggagaatgg cgtgaacctg ggaggcagag
33421 cttgtggtga gccaagatca caccactgca ctccagcctg ggtgacagag cgagactccg
33481 tctcaaaaaa aaaaaaaagg aaaataaatt cttctgtatt tttctttctt caagtgaggc
33541 catttagggg aaagtatacc ataaaacttg ctctaagata aggcaaattt ggtattatag
33601 gatgaagtgc tatgtgattt gaagtaatgc tgaatttttt aaatatatta aactaaacaa
33661 gaataatgag gccctcggaa agtcatgatt atatttctca tttttctcat tttaaagcca
33721 cagtgaaaaa cacataaaag gaagaagtta gaaaaaaaaa tgaatgaaat tctttttttc
33781 cttttggcaa attaaataga tgtttctgtt tcagaagatt ttattaatta actttaaaga
33841 aacagtcatt tatttttggc attcagtgaa cactatcatt tccatgttta gaacttttct
33901 tctaagttag catcttaaaa gataactgtg aaactcaagg cattcaacta cattaatttg
33961 agtttcagaa attgaattct tgtttctaga gtacatagtt tgaattgatg tcagggtgtt
34021 aaatagataa atcttagctt cctaggttgt atattcacac taattatttt tttatcagcc
34081 ttcttatttt tcaacttacc ttattctttt tgtttttttg acactcagat ttgatagccc
34141 tgtggtagaa gaaaacagta atacagtttg gtttgttgtt gtgtttgtgt ttattttaaa
34201 gtcacggctt tgctttccat gttgttactg gattatgctt tttttaattc ttcagtttgc
34261 caagataaca gtcttccgat cttcagaagt ctgtatcaag cttaaggaaa ctgatgtgta
34321 ggaagactcg cctaagaagt ccaaattagc aaggctagca tgtgaggaca tgctggaaaa
34381 gaatagttcc catagatatt gacagagaat gttcataaaa tgctacttgt tttgtggtta
34441 catgagagta acttgtgtcc agtgcagctg tatgtaaggg caacgttttt attctgacga
```

Fig. 63M

34501 ctctgtggtt ttcatgaccc tggatgctta tcatgtctct ctgttggact tcttcaacgg
34561 agttgataca aatacttgct tccaagtgtc catctgccct ctcctccatc ctggccccat
34621 acaaatacgc tacattttta aataatttga aataccctca atagtattta tatttcctgg
34681 tgcttcattc tttccataag aactgtgata ccattattct gtaggatttt tttgtgcttc
34741 cccgtttcac atctctgtgc cagtgagacc catatatcgg tgcaaatcca gaagtttgat
34801 tgtccatctg attagcacac tgttagcaat gtggtggact aaacacagcc aagatgtggg
34861 gctggagctt agcctcctgg gagcagagcg gtgaacatca gatgaagaca tgtgaaaatg
34921 gagtactact tcctcttcct ggggatgggc taaaaagcac agccagaaat attcttgccc
34981 ttccagtctg ctttacagtt actcactggt tctcttttt ttcctactca gataaccagt
35041 atactcttcc cagtgactaa gaactgcaga taagtatagg tgcaaataga tggcaaaccg
35101 cagatggcag ctgtgtggtt tcagatgtgc tgcagaactt ttagacgatg tgaacgcaag
35161 gaacttttt gctgagcagt aatctctacc cactggaaat taggccctgg ggggaacaat
35221 gtagtgactt ctatatactt actacatgca gttagacccc tgaagcaaaa gcttttaaaa
35281 acaggctgta aaatgcccat gtatctttat taagcctatt ttccaactgg atagagaaat
35341 tttctggtaa tttttaaatt tgtaaagtct attttttcc tgagccaagg gaaaaaaaat
35401 atctgggccc taaaagctta gttataacaa tgttattttt tctatctctg aatgattaaa
35461 tgtgatttca tttatgtagc aatactatga ttgtggctgc attagatcac gctgatagaa
35521 agatacaaag aaaaactaag tataatgaac taacaattta ttttcactct ttctctaagt
35581 taaaaattcc cagtacattc aaatgaacaa tgaaaataat tgcagaattg tctcctgaaa
35641 tggaaataga ttttttttcc caagcattag caatttcttg ttatttttca aaatcagcca
35701 ctaagccttt cagagcttct tggtgactat tgcaggagaa atcagaatat taatcttgtg
35761 gttttatttc agagttcgct gccaggaagg aggtataatt gggataggag actttttttt
35821 tttagctgtg tcactgttca aggaggggg tttggaacct cagcataaga attacactct
35881 gtgatgagga tgtagcaggg gagaagaaag gtgattttca ctatgggaag ctatacttac
35941 atcaagtata aaatagactg aagtcatttt gaattacgtt atacttgtaa agtttacctc
36001 ctggagtttc agttagtacc agtgtactaa ctgggttaaa acagttcatg gcaccttaga
36061 tcatttctaa ctcatggcaa aaatctttcc tggtggaacg tgtaactgta ttttaaatgc
36121 ccctttataa gcaaccaagt atttgggatg ttattttgat attagtagtg aatttttcag
36181 tatcttccag taccctttgc aagtcacagg ttgacttaaa aggaaaagaa gcaaaatgct
36241 gaatatagca gaaaaactgt ctgcattcag actgttcagc ccacttttgc tccccacgtg
36301 gcaagcacac tcccccaaac aagcaatagc ctgtggcttc agaggaacct acaaaggcag
36361 catctgtaga tttttccttc ttcaactcta agacttgaat gtttccctct tccccacaca
36421 cttttttttt aaaccaagaa ataaaaaagt tttcactctt aaaggtgcaa agcagtttca
36481 ttcttatgca acacagcctt cctcctactg tcttatagtc tgtggatgtt aaattataga
36541 ttccaattga attttaatac tctagagatt ttacatttgt ggttgtcaag accccgtttt
36601 ggtaaaccta gggagctccg cacaaaagca ttgatattca gaaaaggcac tgacctacaa
36661 attaaaagaa aaaaaaatca aataatgtgc acctcttgtg cttccagttt gacaaagcag
36721 aagtcatcag cagtttctcc ctctgcagac gcagttctca attctattta caagtaactg
36781 ctctactgtg cctgtttttc tcttgctgat actcatttaa ttgtttttct tttggatctg
36841 aatctttgac tgtcttttcc ccctcaagat taaaataaat acatctgtat tcctcccctt
36901 tctttctgtg cactgccctt cagatctcat tttgtcattt ttcagcttag tgttgaaact
36961 tttagcaaca aaaagtcagt tacttacttt gagtaagtaa ctcaaagtaa gttaactttg
37021 agtttgagtg cacttttgcg tgtaggttca tttatgtgct tgtgaattta aaaacattgg
37081 gattccacct gaatgaagta aaccaaacat tttaaactat cagccagata gagacatcag
37141 cctttcactt ctttctatat gcagacatat cctaattttt tagaaaaatc aaataggaaa

Fig. 63N

```
37201 attctcaaca attaattgaa gattatagct ctgctctgaa atggtccaga aataggatct
37261 gctcatagaa actcatagtt tgaagcctct gggaggaaag gatactttaa aatttagtca
37321 catatttgga ggagggaaaa gggaaagagc agaatgaaga actgaaaaaa atcacacacc
37381 ggggcctgtc gtgaggtggg ggactggggg agggatagca ttaggagata tacctaatgt
37441 aaatgacgag ttaacaggcg cagcccacca acatggcaca cgtatacata tgtaacaaac
37501 ctgcacgttg tgcacatgta ccctagaact taaagtataa taaaaaaaaa ttttaatagc
37561 cccattaaat aattaaaaag attttttta gattcacaga agtgtacaaa atttttaggt
37621 ttttttttt ttaagctgtc tgctgaatag tttcttaatg gtctacaatg tttgtatcta
37681 caaacagata ctgtctgctt cttactaccc ttccaagaca agtattatta tggcaattat
37741 tgcccagttt cccgggaaaa atttatccac agttacagaa gaatgagatg caattgtgag
37801 actgtaaagt ttaagcaagc actcagagaa gcacagtgat atgtatgcac agaagaggca
37861 gtctttgttt tgaggaaaac agtgaaagta aagttaattc aagaccacaa agacaagtaa
37921 ataagtgcct tatttttgta gttaatataa tttcagtgga atgcatattt ctaccataaa
37981 tgcatataga acttgtttgc tgacctactg tttggaaaac aaacaatccc attagaagaa
38041 tgtctttggg atttatttt accagaaaat caatcctttt ttcagtccct tgcaaagtac
38101 agtgttacaa gccaagactt tgataatcag gtagaaaatg gatttaaatt gcagaaatgt
38161 atatgaaaca cttttgttcc ttgccccttg aactttaggg gaatgaaaat gtctagcact
38221 ctccaccttc ttttctctcc tggaacttga actgtaattc aaagcctgtt tctcattaaa
38281 gtacctggca gcctatctct ttacagcttg agttacaaag ctattcagag acctcgctgg
38341 tctaaagaga cagaacaagg atgtgtttaa atagagcata ggctgttgaa aaaaaaaatg
38401 ctgaaaatgg taaaatgatt ctgtccttcc ttccactcct cactgctgag gtggagaggg
38461 aattcagttg gtgaacacca gcaagtggct ggtaaaagtc cccactttct ctccagggct
38521 gccacaggac ccagaatgag tggtgggcat gtgtgtgaac cctctattca gccagagttt
38581 tcccgcaaca ggtagtttgg ttgaagaggt tgactaaggt tgacattggc agtaataaca
38641 cgtatgttct tctgatttac aaaacgatgg aggaaaaagg ggagattttg aagacctgat
38701 ttctggtata cttcttaagc atgcataagg ctgaaaaaag aagacaaggg ttgtgggagg
38761 ctcctggtct agtgtttaca gaacttggat gcttgacaaa cagagcgtca agctaattgt
38821 tcttgaagca ggaaatctgc agtggaggaa gcaggtgtgg ggggatgatt accacgtttg
38881 gaaatggctg cattaactat tttgctcttc tgagtttggc cccaaaagag tccatagact
38941 ttttgaagga tgccatccct tttatttata gactaacatt aaatcagtca tttgtgaagg
39001 aaggagaaag tgcctaaata aatttggagt cagatagcat acgtgcggca gtgtttccga
39061 tatccatttc tctttatttc tttttctttt tctttttggc tttcagcatc cccatacttt
39121 cagaaaactt gtgactaaga gtgaattctt atttttcaaa ttgttttcag acatttcatg
39181 ttcatgtaaa cttggcttat tgatttcctg atttttcttt atttttttgt tttgtccatt
39241 ttatttttaa tcagctacat caaatgggtc tttggagggc ctggataacc aggagggagg
39301 ggtgtgccag acaagagcca tgaagatcct catgaaagtt ggacaaggta aagaccatct
39361 gctgcttcat gacgccactg tgacctggtg tagcccccag ctagtatggt gctaatgttg
39421 ccgatgccca ccttcattcg ctcttctttt tagttttcaa agcaaaccct tctgcacttt
39481 gagccactga cagatttcct caagtcaatg tactaagctt ttattggaga tctaagagtt
39541 aagatcagca aggtagaatg tctattgcca tagatagata gatagataga tagataatag
39601 atagatagat agatagatag atatttcttt ttaaaaagca aaacactttg gttcaaaatc
39661 aaaatatcca gaatgaaaac taaaagcttg tgcagttttg ctcatttctg aatcttgact
39721 acagaagagt tttgttcatt gtgacttttc caatatagat aacctattgt gcagaaagaa
39781 ataattattc ttctaattaa aaattggtat agtagtcaat caacttgctc agttaaattg
39841 aaatgtcatc tgcaatgctt tgcctgccaa atgcaagaat ccctatagtt tccacagatg
```

Fig. 63O

```
39901 gcctcacgtt ctaaacctct gaaataacta gtataaccat tttgttttaa aagaaaaatt
39961 atattcttgt atttcacagt actttgcata aagactctta tgttcattgc tattcatgcc
40021 tgttgaaata tatatgcagc tcctaaagct agatattgtc agatgtctgt gccgtaatta
40081 atcatttgtt tttcatatag atgcaagttc tgctggatca accaggaata aagatccaac
40141 aagacgtcca gaactagaag ctggtacaaa tggaagaagt tcgacaacaa gtccctttgt
40201 aaaaccaaat ccaggtataa cagcatgatc tgtgtgtatg gaggtctgtg ggtaccacat
40261 tcttagtagt atcttaaaag gtagggcaga gtctaaagac ttctaaccag ttaggattag
40321 ctggaagtta cagtgatcag gaatctttgc tgtcagtgag tcattattaa ttacactcaa
40381 taagaacaaa ataactcatt ccaatgaaag tcatatattc aaaggagtag agttcatgag
40441 ctgtaagtgc cagttattag aactactctg tcaggccaaa ggtttcattg gctgacattt
40501 tatcaagctg gttgtcaact ccagcttaaa gctgatgtta atgtatatgt aattaatgtg
40561 ctaatccctc atctaattat atctaagcca cagagggttt aattgatcct cttctaaatt
40621 ttaaatggta acatttttaa atattgcata atagtatttt ttcaggtggt tatcgttatt
40681 ttgtttcaca ttttccatgt aaaagaaaat attaaacagg tccctgacaa aagtgtagaa
40741 taccagataa aattgtccgt cgttgacctt cgttttctta acagtcttgg aacaaatagt
40801 tctgtatttg ttaccatgct aatgaaggtt ttatagagta gctgttgagc agacatcagc
40861 agttttgtat taggattgtt gtgtgcttgc ttggtcgttg tgcaaattta tcgtctgcag
40921 caatattcca tccctttcca agagtcaagg agggaagttg ttatttctaa ctttcaatga
40981 caagatgtgt caaattcttg tgacaaactg ataaatggat aatataatga tgccaggcag
41041 ttttttagtg cttaacattt gggctggcag tctgttcggt gtgagagttt ctgctgcctt
41101 ccaaatatat tttaagtgta aatcaaataa tacagacgag ttacgagctg aacattttcc
41161 caggcccccc cactccttcc gcgttcccga gctgttctgt tctgccagga ggcagggctc
41221 ttctttagaa ggcaggccct ttgaaggttt gcatgaaact ccctttctca aaggaggcgg
41281 aagagcaata ccacataaac gctcaccgct gacctggaga attggccact tccctttttc
41341 ttccctgccg ctgccccagg ctggctgaca cgggttagaa gatgaagcaa gatcaagggc
41401 tggctgtcac cgacagtctg tgctcttgct ggataatgat acaaaggaaa ccctgtggct
41461 tgggagggta gggaagtccc tcctagagat acctctcatt tccttttgcg ttgagctctt
41521 agacgaggta ttggcgaggc aaagtccagc ttctagttag taataagcct ggcttatttt
41581 tcacattttt aagggtcata aaagcagtcc gtctgcactg ggacagcagt aactatctct
41641 gacctttttct gtctccgcgt ctgcaggttc tagcacagac ggcaacagcg ccggacattc
41701 ggggaacaac atcctcggtt ccgaagtggc cttatttgca gggattgctt caggatgcat
41761 catcttcatc gtcatcatca tcacgctggt ggtcctcttg ctgaagtacc ggaggagaca
41821 caggaagcac tcgccgcagc acacgaccac gctgtcgctc agcacactgg ccacacccaa
41881 gcgcagcggc aacaacaacg gctcagagcc cagtgacatt atcatcccgc taaggactgc
41941 ggacagcgtc ttctgccctc actacgagaa ggtcagcggc gactacgggc acccggtgta
42001 catcgtccag gagatgcccc cgcagagccc ggcgaacatt tactacaagg tctgagaggg
42061 accctggtgg tacctgtgct ttcccagagg acacctaatg tcccgatgcc tcccttgagg
42121 gtttgagagc ccgcgtgctg gagaattgac tgaagcacag caccggggga gagggacact
42181 cctcctcgga agagcccgtc gcgctggaca gcttacctag tcttgtagca ttcggccttg
42241 gtgaacacac acgctccctg gaagctggaa gactgtgcag aagacgccca ttcggactgc
42301 tgtgccgcgt cccacgtctc ctcctcgaag ccatgtgctg cggtcactca ggcctctgca
42361 gaagccaagg gaagacagtg gtttgtggac gagagggctg tgagcatcct ggcaggtgcc
42421 ccaggatgcc acgcctggaa gggccggctt ctgcctgggg tgcatttccc ccgcagtgca
42481 taccggactt gtcacacgga cctcgggcta gttaaggtgt gcaaagatct ctagagttta
42541 gtccttactg tctcactcgt tctgttaccc agggctctgc agcacctcac ctgagacctc
```

Fig. 63P

```
42601 cactccacat ctgcatcact catggaacac tcatgtctgg agtcccctcc tccagccgct
42661 ggcaacaaca gcttcagtcc atgggtaatc cgttcataga aattgtgttt gctaacaagg
42721 tgccctttag ccagatgcta ggctgtctgc gaagaaggct aggagttcat agaagggagt
42781 ggggctgggg aaagggctgg ctgcaattgc agctcactgc tgctgcctct gaaacagaaa
42841 gttggaaagg aaaaaagaaa aaagcaatta ggtagcacag cactttggtt ttgctgagat
42901 cgaagaggcc agtaggagac acgacagcac acacagtgga ttccagtgca tggggaggca
42961 ctcgctgtta tcaaatagcg atgtgcagga agaaaagccc ctcttcattc cggggaacaa
43021 agacgggtat tgttgggaaa ggaacaggct tggagggaag ggagaaagta ggccgctgat
43081 gatatattcg ggcaggactg ttgtggtact ggcaataaga tacacagctc cgagctgtag
43141 gagagtcggt ctgctttgga tgatttttta agcagactca gctgctatac ttatcacatt
43201 ttattaaaca cagggaaagc atttaggaga atagcagaga gccaaatctg acctaaaagt
43261 tgaaaagcca aaggtcaaac aggctgtaat tccatcatca tcgttgttat taaagaatcc
43321 ttatctataa aaggtaggtc agatcccccc ccccccaggt tcctccttcc cctcccgatt
43381 gagccttacg acactttggt ttatgcggtg ctgtccgggt gccagggctg cagggtcggt
43441 actgatggag gctgcagcgc ccggtgctct gtgtcaaggt gaagcacata cggcagacct
43501 cttagagtcc ttaagacgga agtaaattat gatgtccagg gggagaagga agataggacg
43561 tatttataat aggtatatag aacacaaggg atataaaatg aaagattttt actaatatat
43621 attttaaggt tgcacacagt acacaccaga agatgtgaaa ttcatttgtg gcaattaagt
43681 ggtcccaatg ctcagcgctt aaaaaaacaa attggacagc tacttctggg aaaaacaaca
43741 tcattccaaa aagaacaata atgagagcaa atgcaaaaat aaccaagtcc tccgaaggca
43801 tctcacggaa ccgtagacta ggaagtacga gccccacaga gcaggaagcc gatgtgactg
43861 catcatatat ttaacaatga caagatgttc cggcgtttat ttctgcgttg ggttttccct
43921 tgccttatgg gctgaagtgt tctctaga
```

Fig. 63Q

EphrinB2, mRNA

```
   1 gcgcggagct gggagtggct tcgccatggc tgtgagaagg gactccgtgt ggaagtactg
  61 ctggggtgtt ttgatggttt tatgcagaac tgcgatttcc aaatcgatag ttttagagcc
 121 tatctattgg aattcctcga actccaaatt tctacctgga caaggactgg tactataccc
 181 acagatagga gacaaattgg atattatttg ccccaaagtg gactctaaaa ctgttggcca
 241 gtatgaatat tataaagttt atatggttga taaagaccaa gcagacagat gcactattaa
 301 gaaggaaaat acccctctcc tcaactgtgc caaaccagac caagatatca aattcaccat
 361 caagtttcaa gaattcagcc ctaacctctg gggtctagaa tttcagaaga acaaagatta
 421 ttacattata tctacatcaa atgggtcttt ggagggcctg gataaccagg agggaggggt
 481 gtgccagaca agagccatga agatcctcat gaaagttgga caagatgcaa gttctgctgg
 541 atcaaccagg aataaagatc caacaagacg tccagaacta gaagctggta caaatggaag
 601 aagttcgaca acaagtccct ttgtaaaacc aaatccaggt tctagcacag acggcaacag
 661 cgccggacat tcggggaaca acatcctcgg ttccgaagtg gccttatttg cagggattgc
 721 ttcaggatgc atcatcttca tcgtcatcat catcacgctg gtggtcctct tgctgaagta
 781 ccggaggaga cacaggaagc actcgccgca gcacacgacc acgctgtcgc tcagcacact
 841 ggccacaccc aagcgcagcg gcaacaacaa cggctcagag cccagtgaca ttatcatccc
 901 gctaaggact gcggacagcg tcttctgccc tcactacgag aaggtcagcg gggactacgg
 961 gcacccggtg tacatcgtcc aggagatgcc cccgcagagc ccggcgaaca tttactacaa
1021 ggtctgagag ggaccctggt ggtacctgtg ctttcccaga ggacacctaa tgtcccgatg
1081 cctcccttga gggtttgaga gcccgcgtgc tggagaattg actgaagcac agcaccgggg
1141 gagagggaca ctcctcctcg gaagagcccg tcgcgctgga cagcttacct agtcttgtag
1201 cattcggcct tggtgaacac acacgctccc tggaagctgg aagactgtgc agaagacgcc
1261 cattcggact gctgtgccgc gtcccacgtc tcctcctcga agccatgtgc tgcggtcact
1321 caggcctctg cagaagccaa gggaagacag tggtttgtgg acgagagggc tgtgagcatc
1381 ctggcaggtg ccccaggatg ccacgcctgg aagggccggc ttctgcctgg ggtgcatttc
1441 ccccgcagtg cataccggac ttgtcacacg gacctcgggc tagttaaggt gtgcaaagat
1501 ctctagagtt tagtccttac tgtctcactc gttctgttac ccagggctct gcagcacctc
1561 acctgagacc tccactccac atctgcatca ctcatggaac actcatgtct ggagtcccct
1621 cctccagccg ctggcaacaa cagcttcagt ccatgggtaa tccgttcata gaaattgtgt
1681 ttgctaacaa ggtgcccttt agccagatgc taggctgtct gcgaagaagg ctaggagttc
1741 atagaaggga gtggggctgg ggaaagggct ggctgcaatt gcagctcact gctgctgcct
1801 ctgaaacaga aagttggaaa ggaaaaaaga aaaaagcaat taggtagcac agcactttgg
1861 ttttgctgag atcgaagagg ccagtaggag acacgacagc acacacagtg gattccagtg
1921 catggggagg cactcgctgt tatcaaatag cgatgtgcag gaagaaaagc ccctcttcat
1981 tccggggaac aaagacgggt attgttggga aaggaacagg cttggaggga agggagaaag
2041 taggccgctg atgatatatt cgggcaggac tgttgtggta ctggcaataa gatacacagc
2101 tccgagctgt aggagagtcg gtctgctttg gatgattttt taagcagact cagctgctat
2161 acttatcaca ttttattaaa cacagggaaa gcatttagga gaatagcaga gagccaaatc
2221 tgacctaaaa gttgaaaagc caaaggtcaa acaggctgta attccatcat catcgttgtt
2281 attaaagaat ccttatctat aaaaggtagg tcagatcccc ctccccccag gttcctcctt
2341 cccctcccga ttgagcctta cgacactttg gtttatgcgg tgctgtccgg gtgccagggc
2401 tgcagggtcg gtactgatgg aggctgcagc gcccggtgct ctgtgtcaag gtgaagcaca
2461 tacggcagac ctcttagagt ccttaagacg gaagtaaatt atgatgtcca gggggagaag
2521 gaagatagga cgtatttata ataggtatat agaacacaag ggatataaaa tgaaagattt
2581 ttactaatat atattttaag gttgcacaca gtacacacca gaagatgtga aattcatttg
```

Fig. 64A

```
2641 tggcaattaa gtggtcccaa tgctcagcgc ttaaaaaaac aaattggaca gctacttctg
2701 ggaaaaacaa catcattcca aaaagaacaa taatgagagc aaatgcaaaa ataaccaagt
2761 cctccgaagg catctcacgg aaccgtagac taggaagtac gagccccaca gagcaggaag
2821 ccgatgtgac tgcatcatat atttaacaat gacaagatgt tccggcgttt atttctgcgt
2881 tgggttttcc cttgccttat gggctgaagt gttctctaga atccagcagg tcacactggg
2941 ggcttcaggt gacgatttag ctgtggctcc ctcctcctgt cctccccccgc acccccctccc
3001 ttctgggaaa caagaagagt aaacaggaaa cctacttttt atgtgctatg caaaatagac
3061 atctttaaca tagtcctgtt actatggtaa cactttgctt tctgaattgg aagggaaaaa
3121 aaatgtagcg acagcatttt aaggttctca gacctccagt gagtacctgc aaaaatgagt
3181 tgtcacagaa attatgatcc tctatttcct gaacctggaa atgatgttgg tccaaagtgc
3241 gtgtgtgtat gtgtgagtgg gtgcgtggta tacatgtgta catatatgta taatatatat
3301 ctacaatata tattatatat atctatatca tatttctgtg gagggttgcc atggtaacca
3361 gccacagtac atatgtaatt ctttccatca ccccaacctc tcctttctgt gcattcatgc
3421 aagagtttct tgtaagccat cagaagttac ttttaggatg ggggagaggg gcgagaaggg
3481 gaaaaatggg aaatagtctg attttaatga aatcaaatgt atgtatcatc agttggctac
3541 gttttggttc tatgctaaac tgtgaaaaat cagatgaatt gataaaagag ttccctgcaa
3601 ccaattgaaa agtgttctgt gcgtctgttt tgtgtctggt gcagaatatg acaatctacc
3661 aactgtccct ttgtttgaag ttggtttagc tttggaaagt tactgtaaat gccttgcttg
3721 tatgatcgtc cctggtcacc cgactttgga atttgcacca tcatgtttca gtgaagatgc
3781 tgtaaatagg ttcagatttt actgtctatg gatttggggt gttacagtag ccttattcac
3841 ctttttaata aaaatacaca tgaaaacaag aaagaaatgg cttttcttac ccagattgtg
3901 tacatagagc aatgttggtt ttttataaag tctaagcaag atgttttgta taaaatctga
3961 attttgcaat gtatttagct acagcttgtt taacggcagt gtcattcccc tttgcactgt
4021 aatgaggaaa aaatggtata aaaggttgcc aaattgctgc atatttgtgc cgtaattatg
4081 taccatgaat atttatttaa aatttcgttg tccaatttgt aagtaacaca gtattatgcc
4141 tgagttataa atatttttt ctttctttgt tttattttaa tagcctgtca taggttttaa
4201 atctgcttta gtttcacatt gcagttagcc ccagaaaatg aaatccgtga agtcacattc
4261 cacatctgtt tcaaactgaa tttgttctta aaaaaataaa atatttttt cctatggaaa
4321 aaaaaaaaaa aaaaa
```

Fig. 64B

EphB4 Precursor Protein

```
  1 melrvllcwa slaaaleetl lntkletadl kwvtfpqvdg qweelsglde eqhsvrtyev
 61 cdvqrapgqa hwlrtgwvpr rgavhvyatl rftmleclsl pragrscket ftvfyyesda
121 dtataltpaw menpyikvdt vaaehltrkr pgaeatgkvn vktlrlgpls kagfylafqd
181 qgacmallsl hlfykkcaql tvnltrfpet vprelvvpva gscvvdavpa pgpspslycr
241 edgqwaeqpv tgcscapgfe aaegntkcra caqgtfkpls gegscqpcpa nshsntigsa
301 vcqcrvgyfr artdprgapc ttppsaprsv vsrlngsslh lewsaplesg gredltyalr
361 crecrpggsc apcggdltfd pgprdlvepw vvvrglrpdf tytfevtaln gvsslatgpv
421 pfepvnvttd revppavsdi rvtrsspssl slawavprap sgavldyevk yhekgaegps
481 svrflktsen raelrglkrg asylvqvrar seagygpfgq ehhsqtqlde segwreqlal
541 iagtavvgvv lvlvvivvav lclrkqsngr eaeysdkhgq ylighgtkvy idpftyedpn
601 eavrefakei dvsyvkieev igagefgevc rgrlkapgkk escvaiktlk ggyterqrre
661 flseasimgq fehpniirle gvvtnsmpvm iltefmenga ldsflrlndg qftviqlvgm
721 lrgiasgmry laemsyvhrd laarnilvns nlvckvsdfg lsrfleenss dptytsslgg
781 kipirwtape aiafrkftsa sdawsygivm wevmsfgerp ywdmsnqdvi naieqdyrlp
841 pppdcptslh qlmldcwqkd rnarprfpqv vsaldkmirn paslkivare nggashplld
901 qrqphysafg svgewlraik mgryeesfaa agfgsfelvs qisaedllri gvtlaghqkk
961 ilasvqhmks qakpgtpggt ggpapqy
```

Fig. 65

EphrinB2

```
  1 mavrrdsvwk ycwgvlmvlc rtaisksivl epiywnssns kflpgqglvl ypqigdkldi
 61 icpkvdsktv gqyeyykvym vdkdqadrct ikkentplln cakpdqdikf tikfqefspn
121 lwglefqknk dyyiistsng slegldnqeg gvcqtramki lmkvgqdass agstrnkdpt
181 rrpeleagtn grssttspfv kpnpgsstdg nsaghsgnni lgsevalfag iasgciifiv
241 iiitlvvlll kyrrrhrkhs pqhtttlsls tlatpkrsgn nngsepsdii iplrtadsvf
301 cphyekvsgd yghpvyivqe mppqspaniy ykv
```

Fig. 66